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THE ARCE SPHINX PROJECT
A PRELIMINARY REPORT

Introduction

The Sphinx Project of the American Research Center in Egypt grew out of our perception of the stratigraphic opportunities that came to light in the course of the excavations conducted in the Sphinx sanctuary in 1978, under the direction of the chief inspector of the Giza Pyramids, Zahi Hawass. The area of the Sphinx is one of the few in the Giza necropolis where the stratigraphic history of the necropolis can still be observed. Moreover, it is a site in which several major periods of Egyptian history intersect in both architectural and depositional stratification.

Reports of previous excavations, including the 1925-36 clearance of the entire Sphinx complex, are vague as to the stratigraphy encountered as well as in the location of structures that were removed in the course of excavation. More surprisingly, no accurate large-scale plans of the monument and its immediate environs yet exist, despite over 150 years of modern excavation.¹

With these deficits and opportunities in mind, we approached the Egyptian Antiquities Organization for concession rights to the Sphinx complex, and these were generously granted, in the name of the field director and principal investigator, in January 1979. In November 1979, the Archeological and Research Expeditions Committee of the American Research Center granted official ARCE sponsorship to the project.

In September 1979, the project received the fieldnotes, plans, and 200 photographs compiled by Pierre Lacau during the course of the 1925-36 excavations. These archives, currently under the care of the Centre Vladimir Golenischeff of the Ecole Pratique des Hautes Etudes, Paris, were made available to the project through the generosity of the director of the Centre Golenischeff, Prof. Jean Yoyotte. We have made extensive use of them in planning and interpreting the results of our work. The information they preserve will, we hope, make it possible for us eventually to produce, in effect, the archeological report of the 1925-36 clearance fifty years after the fact.



Commensurate with our goals of excavation and recording, the project is working to provide an authoritative assessment of the need and best means for consolidation and conservation of the Sphinx itself. In this regard, we have been fortunate to secure the cooperation of Dr. K. Lal Gauri, director of the Stone Conservation Laboratory, and chairman of the Department of Geology, of the University of Louisville. Dr. Gauri has donated his time and expertise as project geologist since November 1979. We have also been fortunate to receive the collaboration of Dr. Jihan Rigai, of the American University in Cairo, who has donated her time and expertise as project chemist.

The work of the ARCE Sphinx Project would not be possible without the active collaboration and facilities made available to us through the generosity of the Egyptian Antiquities Organization. We wish to express our appreciation, in particular, to its President, H. E. Dr. Shehata Adam Mohammed; and to Dr. Abdel Qader Selim, Director General; Dr. Ibrahim el-Nawawy, former Director General of Pharaonic Antiquities; Dr. Mahmud Abdel Razik, Director of Excavations for Cairo, Giza, and Saqqara; and Mr. Nassef Hassan, Director of the Giza Inspectorate. Special mention should be made of Mr. Zahi Hawass, Chief Inspector of the Giza Pyramids, who has offered to coordinate his own research at the site with our project.

Objectives

1. 1:100 map of the larger quarry forming the Sphinx "amphitheater", from S of Khafre's Valley Temple to the quarry ledge N of the Sphinx cavity.
2. Mapping the structural geology of the site; documenting geological stratification and faults.
3. Reconstructing, as far as is possible, area plans and approximate stratigraphic relations of the site's various periods from published and archival sources, including the documentation in the Archives of Lacau.
4. A photogrammetric study of the Sphinx statue, principally for complete N, S, and frontal elevations showing attached stonework, natural faults, and contours.
5. Drawings of the Sphinx and its site in section, including complete N-S and longitudinal E-W master profiles.
6. Analysis of the stonework on the statue: tool marks, masonry patterns, composition of the stone and mortar.
7. 1:50 detailed plan of the immediate Sphinx sanctuary (rock-cut cavity) showing features in the floor such as holes, cuttings, and faults. Larger-scale plans of specific features will be done as necessary to record more important details.

8. Excavation of undisturbed deposits on the site neglected during previous excavation, to salvage remaining stratification. This includes some minor deposits in the Sphinx Temple and the systematic clearance of artificial holes and cuttings in the floor of the Sphinx sanctuary.

9. An assessment of the need for consolidation work of the Sphinx and the steps to be taken for its preservation.

Progress

The Sphinx Project has been in progress for one year. Personnel includes James Allen, Principal Investigator; Mark Lehner, Field Director; K. Lal Gauri (University of Louisville, geologist; Jihan Ragai (The American University in Cairo), chemist; Christianne Zivie (CNRS), Egyptologist; Ulrich Kapp (DAIK), photogrammeter; Peter Lacovara (University of Chicago) and Cynthia Schatz (The American University in Cairo), archeologists.

Work began on site 17 June 1979 and continued through July. The project was resumed 12 September 1979 and carried on until 7 February 1980. Dr. Gauri came for the project's preservation study in April 1980, and work has continued from 6 June 1980 until present.

The highest priority was given in the first season to completing the large-scale architectural recording of the statue itself, since concern about its possible deterioration prompted restoration efforts by the EAO even while our project was in progress - efforts that necessarily change the state of the statue, concealing ancient stonework and part of the parent-rock core. At the same time, additional detailed studies and small-scale excavations were undertaken to sample the range of information on the site and the kind of recording necessary to extract it.

Our project's objectives fall naturally into five main areas of focus. In order of priority, these are: (1) the statue itself; (2) the assessment of the need and means for its preservation; (3) the sanctuary; (4) the treatment of the undisturbed ancient stratification still remaining (in collaboration with Mr. Zahi Hawass); and (5) the chronology of the larger site, based on our mapping and on the documentation that exists from previous excavations.

1. Study of the Sphinx statue

The statue known as the Great Sphinx is formed of a parent-rock core fashioned out of the surrounding gebel, and at least two layers of rectangular stone blocks forming a "skin": larger stones, varying in size and up to 1 m. in length next to the parent-rock core; and smaller, brick-sized stones covering the larger blocks in places.

General elevations of the N, S, and front sides of the Sphinx can be done most expeditiously through photogrammetry. The photogrammetric survey and plotting for these elevations were generously furnished by the German Archaeological Institute in Cairo, whose photogrammeter, Mr. Ulrich Kapp, joined the project on-site through September and October.

The surveying and photography for the photogrammetry were keyed to the project grid, surveyed onto the floor of the Sphinx sanctuary and Sphinx Temple. When the photogrammetry was begun on September 12, the survey grid was rechecked for accuracy. Surveying data and photographs were completed through October. Mr. Kapp has now finished plotting the elevations, which show the contours of the exposed parent-rock of the statue and all stonework attached to the core. N-S cross sections have been produced at 5 m. intervals along the length of the statue. The plotting is done at scale 1:50; Fig. 1 shows, in reduction, the elevation of the front with a section down the center.

Portions of the statue that could not be recorded with photogrammetry were plotted by hand. Fig. 2 includes the top-plan of the forepaws with all observable stonework measured in. This will be locked into a master plan of the statue showing the detail of the head, outline of the back, the masonry boxes attached to the sides of the statue, a stone-by-stone plotting of the base outline, and the surface of the layered stonework that attaches at different levels around the parent-rock core (Fig. 3).

Such records will be useful in assessing and documenting future efforts at restoration of the statue. In addition, they reveal much about the building history of the Sphinx. The coating of masonry attached to the core body in ancient times, and now denuded to less than half the height of the existing core on the N and to about three-fourths of the height of the core on the S, shows at least two main periods, indicated by overlapping layers. There is also patchwork inter-phasing, probably of different periods, in the outer layer. In addition to the master sections through the statue at 5 m. intervals, detailed sections at 1:20 are drawn and located on the master plan for studying this stonework (Figs. 3, 4).

A good part of the history of the Sphinx may be read from this added masonry, from the condition of the core under the earliest level, the stratification of the stonework, analysis of tool marks, and possibly through analysis of the mortar bonding the different phases. Small samples of this mortar are collected and keyed to the 1:20 sections (eg. Figs. 3, 4; mortar samples mE1, mE2, etc.) to preserve their precise provenance. The mortar analysis has been carried out by Dr. Jihan Ragai at the American University in Cairo's Chemistry Unit, using X-ray diffraction, infrared and emission spectroscopy.

2. Preservation Study

In August 1979, a series of seven samples of loose flakes and efflorescences from the stone of the parent-rock core of the Sphinx, the Sphinx sanctuary, and the Sphinx Temple were sent to Dr. K. Lal Gauri for analysis in his Stone Conservation Laboratory at the University of Louisville, along with a set of color slides documenting their exact source. Dr. Gauri's preliminary analysis showed a high accumulation of water-soluble salts at the surface of the stone; through cyclic crystallization, these may be partly responsible for the stone's deterioration.

In April 1980, Dr. Gauri made an on-site assessment of the Sphinx and carried out systematic sampling. Fig. 5 illustrates a sampling profile at the front of the Sphinx. The geological unit in which the core body has been cut contains several strata. Samples of flaking stone were taken for successive strata to determine the chemical situation at the surface of each, and to test for the hypothesis that rising and evaporating water is bringing soluble salts to the surface. Samples E23, 24, and 25 were taken from the sand bedding, the bottom, and the erosion line of the granite Thutmose IV stela to determine if a similar process is acting on its gradual flaking and deterioration (5 lines of text have been lost since Lepsius' publication).

Dr. Gauri is presently studying these samples. Stone loss on the Sphinx over the last 50 years can be approximately determined by comparing profiles of the statue as shown in the Arch. Lacau photos with its present state. Dr. Gauri will send his results to several other specialists working in the field of stone consolidation to solicit observations and recommendations. A full report will then be submitted to the Antiquities Organization.

Dr. Gauri has forwarded some preliminary conclusions based on his study thus far:

The field investigation clearly reveals the intimate association of efflorescing salts and decaying stone. The stone is being reduced by continual peeling and every peel of stone has a deposit of whitish salts. This is true of the limestone of the core and veneering blocks as well as of the granite (Thutmose IV) stela and at the Khafre Valley Temple. Furthermore, one can clearly see patches of salt infestation spreading from the sites of bad mortar.

These salts, originally lodged in mortar, in the blocks of the various generations of restoration, and in the parent-rock from which the core of the Sphinx has been carved, have been accumulated by the underwater at and beneath the surface of the stone. Their

repeated solution during condensation of moisture at night and crystallization due to evaporation of water during the day, mechanically disintegrate the stone. Also, these salts weaken the stone whereby it becomes more vulnerable to wind erosion.

It follows from this that infested mortars should be removed, restoration blocks replaced or cleaned, and the parent-rock flushed of these salts. It also follows that the water table should be mapped and efforts undertaken to lower the water table in the immediate region of the Sphinx. Further, new replacement blocks as well as new mortar must be carefully studied and cleaned of salts if they occur in these materials. Precautions must be taken that new restoration materials are not in contact with infested stone and mortar.

My visual observations of the Sphinx, and its state as seen in the [Arch. Lacau] photographs of 1925-26 suggest that during this period a massive deterioration has not occurred which would warrant immediate emergency treatments. This is not to minimize the obvious seriousness of the problem relating to the occurrence of the salts which, like cancerous growth, are spreading into the neighboring relatively healthy stone.

3. The Study of the Sphinx Sanctuary

One of the immediate needs for recording the Sphinx is an accurate large-scale plan of the sanctuary (the floor area of the cavity in which it was formed). Much information still remains to be extracted through careful study of the many features cut into the parent-rock floor. These take the form of small holes, 15-20 cm. in depth and diameter (designated h1, etc.); linear or rectangular cuttings (c1, etc.); and irregular depressions (d1, etc.). Many contain undisturbed ancient fill that has been left intact by earlier excavations. By carefully mapping each feature and analyzing its fill, we hope to be able to appreciate larger patterns of distribution and to understand the purpose of the features.

For this study, the immediate floor area of the Sphinx was divided into seven sectors: NE, N, NW, SW, S, SE, and E. During June and July 1979, a series of these features in the NE corner of the sanctuary was excavated as a sample (Fig. 7). These occurred under the area labelled R4 in Fig. 6 (which includes the plan of excavation of a slope containing undisturbed deposit done under Zahi Hawass in 1978; the relation of these features with the overlying ancient deposits in this corner will be fully discussed in a separate report in collaboration with Mr. Hawass). Specific groups of features, such as those in Fig. 7, were planned at larger scales of 1:20 and 1:10. The small holes were quadranted, the fill sampled, and the sections drawn at 1:2 (Fig. 8).

C10-21 were filled with a hard compact buff to yellowish gypsum with limestone fragments. Large pieces of chert and quartzite, with one showing traces of copper flecks, were taken from C19-21. Some holes, such as h6 and h5, appeared within this gypsum fill as purplish-grey spots of finely disintegrated granite ("granite dust"). Others were filled with a tan or brown clay, or a grey compound of clay, gypsum, sand, and granite dust, with limestone, granite, and dolerite chip inclusions (Fig. 8). One of the holes (not shown in Fig. 7) occurred at the bottom of a gypsum-filled depression. A dark band of carbon cut through the gypsum fill to the hole, suggesting a kind of post hole, perhaps for scaffolding. It seemed reasonable to expect some kind of pattern to emerge from the positions of the holes, yet this did not prove to be the case with this particular group of features.

In several of the holes sherds have been found, some of which are diagnostic (Fig. 8, h16). In one case the sherds joined to produce the wall of a vessel with a diameter and profile that matched that of the hole. In this case the hole seems to have served as a socket for a crude red-ware (water?) jar, which was later sheared off at the rim of the hole. In h15 (Fig. 8) a carefully laid cache of flint debitage was found, and under this a lens of yellow clay contained dehydrated seeds.

Our tentative conclusion is that these holes were cut and later filled in the Old Kingdom, during construction activity on the Sphinx and Sphinx Temple. The granite dust and dolerite chips found in several of them should derive from finish work on the nearby walls of the Sphinx Temple. The stratigraphic evidence from Mr. Hawass' excavations (Fig. 6) goes far toward confirming this.

The rectangular cuttings shown in Fig. 7 also likely reflect Old Kingdom building activity. In this area they occur in patterns of groups of three. The profile across any group of three (Fig. 7 upper inset) reveals a pattern of shallow to deep cutting (the individual cuttings range in depth from a few to 50 cm.). All have the wedge-shaped graded bottoms shown for C2 (inset). The fact that they occur under and alongside in-situ core-blocks of the Sphinx Temple (cb 1 and cb 2 in Figs. 6, 7) and core-blocks left where they now lie during construction activities (cb B, cb C), indicates that these cuttings were sockets for large levers used in maneuvering the core-blocks. The width of each group of three is about 2 m. - as wide as, or slightly wider than, the ends of many of the core-blocks that form the walls of the Sphinx Temple: this suggests that three large levers were used at one time under the ends or sides of the core-blocks.

To be effective in moving a multi-tonned block of stone, a wooden lever would have to be about the size of a railroad tie - or about the width of one of these cuttings. Just such

a beam may be represented in the lower register of the scene of moving a large colossus in the el-Bersheh tomb of Djehutihotep (Newberry 1893-94, I, PL. XV). Three men are needed to carry a large wooden beam with a series of notches cut into one side (Fig. 7 lower inset). The inscription above this group reads f3t htw n st3 jn ...wt: "carrying beams for moving by the group of ...s."² In the case of the Djehutihotep colossus, the technique of the lever and wedge-shaped cuttings may have been necessary for occasionally getting the transport sled over a rough spot on a rock surface. At the Sphinx, these cuttings and similar levers would be necessary for getting the large core-blocks off the floor, and for moving them short distances when it would have been less practical to mount them on rubble, sleds, and/or sleepers.

Similar cuttings are to be seen along the N front of the Great Pyramid and elsewhere at Giza. They were found at the ends of the boat pits at the S side of the Great Pyramid.³ The fact that they are occasional, and not a regular feature to be found associated with all large masonry works, suggests that they were used with large levers as an aid when occasion arose - particularly when large blocks had to be lifted and maneuvered off a rock floor. Clark and Engelbach (1930, 109) seem to refer to such cuttings when they state:

Though here and there holes can be seen in the pavement or in the courses [of the Pyramid] in which levers may have engaged when used as handspikes, or in which the fulcra of the levers may have been anchored, they must be disregarded in the inquiry, since they are exceptional...The most that can be said regarding the occasional holes in the pavements and courses is that they may have been brought into use if a block proved refractory - if something went wrong.

Nevertheless, the patterns of the cuttings, and their association with in situ and maneuvered core-blocks suggests how levers were generally used with the ends of blocks. The same system could have been used when the blocks were on a bed of rubble or sand, or with transport sleds riding over a bedding. In some cases, such as the bottom row of core-blocks forming the S wall of the Sphinx Temple, the notches are cut in reverse on the undersides of the blocks.

4. Excavation of Undisturbed Deposits

Excavations carried out in the NE corner of the Sphinx sanctuary under Mr. Zahi Hawass, Chief Inspector of the Giza Pyramids, in 1978 revealed undisturbed ancient stratification in the slope of debris connecting the 18th-Dynasty Temple of Amenhotep II, the NW corner of the Sphinx Temple, and the remains of Roman stairs in front of the forepaws (Fig. 6). A bottom level, partly sealed by the corner of Amenhotep's Temple, appears to be construction debris deposited in the Old Kingdom, judging by the

ceramic evidence. This deposit lies on the uppermost of the two terraces that form the Sphinx complex.

In order to add to the stratigraphic picture revealed in the course of Mr. Hawass's project, our project excavated a small trench through a mound of ancient debris left by previous excavations under a toppled core-block leaning against the N wall of the Sphinx Temple in the colonnade. This offered some idea of the lowest levels of ancient fill, mostly removed by the massive clearing of Baraize in 1925-36. In contrast to the 1978 excavations, this deposit is lying on the lower terrace and inside the temple walls.

Our trench, designated R16 in conformity with the sequence from 1978, revealed that this small remaining deposit was stratified. Fig. 9 is the main section obtained from the trench, which ran to the limestone core-blocks of the N wall. Level 3b, on which the toppled core-block rests, is a packed humidified sand, which may signify a period of abandonment and drift. Levels 4-4e likely resulted from the robbing of the temple: these all contained many fragments of granite and alabaster, the costly stone with which the temple was finished. The bottom rubble level, 4d-e, contained several fragments of the corners of granite blocks. Level 6 stood out in the section as a pale blue band of concentrated, finely disintegrated granite ("granite dust"). This was likely deposited when the granite sheathing had been placed against the limestone core of the N wall and afterward finished and polished smooth on its outer face, the granite dust collecting in the slope leading down to the level socket for the base of the granite sheathing. Over this granite dust, the alabaster flooring was laid up to the granite sheathing of the wall. When the granite sheathing was robbed, the blocks were pulled out down to their socket cut into the floor. The alabaster floor slabs were likewise removed, leaving only a thin band of mortar (level 5) and the granite dust (level 6) as a stratigraphic note that the temple had been completed on the interior and later denuded. Unfortunately, diagnostic sherds from the trench totaled only a handful of very small pieces, giving little secure indication of the period of robbing.

5. Chronology: Observations and Hypotheses

During his study of the Sphinx in April 1980, Dr. Gauri offered some tentative observations of the structural geology of the site that appear to be important for an understanding of its quarrying and construction. We are now hoping to have Dr. Gauri back for an in-depth study of some of these aspects: mapping the fabric of the Sphinx, plotting faults, and identifying the significant geological units. Until a study is done, the possible insights his observations generated must be considered as tentative.

Dr. Gauri pointed out that the Sphinx complex appears to have been quarried out of three principle geological beds: a hard limestone, in which the head was cut; an intermediate bed of softer limestone in which the core-body was fashioned; and a lower bed, again of harder grey limestone, from which the lower terrace for the Sphinx Temple was formed. We were pleased to find confirmation of this view in Rushdi Said's Geology of Egypt (1962, 98) where he incidentally cites the Sphinx to exemplify the Eocene succession west of Cairo:

In the pyramids of Gizeh plateau the succession has a 25 m. thick grey to yellowish limestone bed at the base. This is rich in Nummulites gizehensis, Echinolampas africanus, Velates schmiedlii, Ostrea pharaonus, and others. This is followed by a 15 m. thick unit best exposed in the Sphinx ditch in the quarry along the Fayum road. It is dolomitic in places and contains a number of fossils, mainly pelecypods, gastropods, and occasional Nummulites gizehensis. Near the top of this unit there is a thin bed carrying Ostrea reili and Operculina pyramidum. The head and neck of the Sphinx are carved in this latter bed.

The contrast between the head and core-body of the Sphinx strikes even the casual observer. One reason for this is the better state of preservation of the head, probably due to the fact that it was fashioned from a harder limestone. The separation line between this, Bed 1, and Bed 2 of the body is clearly seen in back of the head where a thin slice of Bed 1 disappears into the top of the back (Fig. 10). The salient characteristic of Bed 2 is a succession of yellow bands, which may be due to limonite, running horizontally through the core-body of the Sphinx. Here, as with the side of the Khafre causeway just to the S, the yellowish bands of the softer layers have eroded much more severely than the intermediate harder layers in Bed 2, leaving a profile of successive rolls or sharp undulations.

The lower terrace of the Sphinx Temple is cut down into the lowest Bed 3, again a hard limestone like the head. The slope of the formation, including all three beds, is downward to the E and S. In the area of the Sphinx, Bed 1 has all but disappeared, with the exception of the statue's head, due to quarrying. Ancient quarrying has left the surface of Bed 2, the softer intermediate unit, laid bare along its radical slope to the SE behind the Khafre Valley Temple. Bed 2 is seen in section as the upper ledge forming the W limit of the larger Sphinx "amphitheater", sloping up to the modern paved road. In fact, much of the Old Kingdom necropolis arrayed along the S side of the Khafre causeway, and the causeway itself, appears to have been set into the exposed surface of Bed 2 as it slopes up westward to the foundation of the Khafre pyramid. Within the Sphinx "amphitheater", on the north side, the surface of Bed 3 has been laid bare sloping down to form the N limit of the immediate Sphinx cavity from the quarried ledge to the N. A good portion of the paws

and the base of the statue have been formed from Bed 3 as it slopes down eastward to run through the lower part of the core-body (where it is mostly covered by ancient stonework on the Sphinx) and to disappear in the floor about 10 m. S of the S forepaw. It appears that the ancient Egyptians purposely followed these natural strata as they quarried out the Sphinx complex and foundations for the adjacent Valley Temple, if not the entire necropolis.

Many or most of the massive limestone core-blocks of the Sphinx Temple walls are characterized by a yellow band running horizontally through them. It is clear that some have been extracted along the line of such a soft vein, as they often show the soft yellow limestone running just on their tops or bottoms. Yet an intermediate yellowish band is also seen running through the center of most of the blocks. To a remarkable extent, one can trace the thinning out and thickening of this band, and its undulations from one core-block to another for a considerable length of a series of adjacent core-blocks (Fig. 11). What this suggests is that the blocks were extracted and moved into place in sequence, so that the geological stratification runs remarkably continuous through the blocks as it did before they were extracted from parent rock. The construction of the Sphinx Temple must have been organized so that there was little opportunity for separating adjacent blocks en route from the quarry to the wall.

This geological stratification, running to varying extents continuously through the Sphinx Temple walls, serves as a kind of signature for the source of the blocks and the order of construction. Petrographic and geological study will be needed to confirm what direct observation wants to suggest: that the core-blocks forming the Sphinx Temple walls were mostly extracted from Bed 2, the soft bed with yellowish bands in which the major part of the Sphinx sanctuary and its core are formed. Their provenance might be defined more precisely as the quarry that formed the S side of the Sphinx sanctuary and the face of the higher ledge marking its W end, since this is the largest exposure of Bed 2 in the area before it slopes down to disappear behind the Valley Temple, or phases out over the rise of Bed 3 to the N side of the Sphinx.⁴

If these preliminary hypotheses can be maintained, then the Sphinx Temple and the Sphinx itself must have been formed during the same quarrying and construction process: the core-blocks for the temple walls were taken from the quarry that formed the sanctuary, leaving a core from which the body of the Sphinx was carved. Features in the bedrock floor of the sanctuary may offer a short note of confirmation. The general rough area shown in Fig. 7, in which the wedge-shaped cuttings and holes occur, leads over to the spot where quarry work was abandoned in the N ledge of the sanctuary (Fig. 6, R2). This

suggests that some last few core-blocks (from Bed 3 here) were being taken from the cutting of this N ledge, up to the point at which the ledge becomes too thin for extracting core-blocks.

To quarry out the Sphinx and to produce core-blocks for its temple in the same process would have been most economical of time, labor, and materials. The question arises, however, as to why the core-blocks for the Sphinx Temple were not taken immediately from the quarrying that formed its lower terrace - the stone there is of better quality - or why the walls of this temple were not entirely fashioned directly from parent rock, as is the case with the lower parts of the walls of the western-most rooms. One possible answer - which needs further investigation - is that much of the stone extracted from what became the lower terrace was used in the construction of the adjacent Valley Temple. As a working hypothesis, then, we suggest that many of the core-blocks for the Valley Temple were extracted from the quarrying that formed the lower terrace of the Sphinx complex, and upon this terrace the Sphinx Temple was constructed of core-blocks taken from the quarrying that fashioned the Sphinx.

Certainly, a good deal more stone than that taken from the Sphinx cavity and the lower terrace was extracted from this area, since the original plateau rose here at least to the present height of the Sphinx's head. The core work of the Valley temple also shows some continuous stratification running through adjacent core-blocks, and at least some of these might also be from Bed 2. The hypothesis here applied to the Sphinx complex and Valley Temple must also be set into the quarrying and construction sequence of the entire Khafre complex and the Bauge-schichte of the Giza Necropolis as a whole.

Other questions about the building history of the Sphinx have come up during our recording of the statue itself. To what extent was the Sphinx finished in the Old Kingdom? To what extent was it sculpted from parent rock to begin with? When were the earliest and subsequent layers of stonework added to the core?

It is clear that work was abandoned on the Sphinx sanctuary and temple before the intended plan was completed. Ricke (1970, 38-39) pointed out that the temple was left unfinished and may have never been put into use. Although the interior of the temple was likely finished off with granite sheathing on the walls and alabaster flooring, a number of factors indicate that the exterior of the temple, particularly in the NW corner, was abandoned before completion. In Figs. 6 and 7 core-blocks B and C have likely been left in their present position at the moment work stopped on this part of the temple - their ends have been brought together and cut parallel so that they would match when placed in the core work of the temple wall.

Simple observation of the sanctuary also reveals where quarry work was abandoned. The very straight cutting into parent rock (Bed 3) forming the N side of the N corridor of the Sphinx Temple continues under the foundations of the Amenhotep Temple and passes westward to form the N limit of the Sphinx sanctuary (Fig. 6). It was doubtless intended that this line should be cut straight for the entire perimeter of the sanctuary; yet the cutting of it was abandoned in the NE corner (Fig. 6, R2). The top of the ledge formed by this unfinished cutting contains a series of squarish removal channels, from a few to forty cm. deep, left as the top of the ledge was being worked down.

The S side of the sanctuary is formed by the face of the ascending Khafre causeway. For most of the length of the sanctuary the face has been shaved to a uniform batter (although the softer bands have eroded out). In the rear SW corner, a ramp of parent rock (Bed 3 surface) ascends from the floor level to the lower ledge immediately behind the rump of the Sphinx, indicating where work was abandoned on the S side. The ledge behind the Sphinx - entirely of Bed 3 - has been left completely unfinished as a huge massif of rock jutting out to within a meter or two of the statue.

It is generally supposed that the Sphinx statue was originally completed in the parent rock, which subsequently eroded and was later restored with various-sized blocks of stone. The very poor quality of Bed 2, which comprises the major part of the core-body, however, has prompted us to question seriously whether a finished sculpture could have been executed in this rock to begin with.

Judging by the way in which the surfaces of successive limestone beds were laid bare and followed by the Old Kingdom quarries in the area, the ancient Egyptians must have had an idea of the strength and quality of the various beds. There are indications that Bed 1, of the Sphinx's head, had been exploited for the length of the plateau. By the time they arrived at the quarries for the Sphinx complex, the ancient workmen would have had a good idea of the softness of Bed 2, of which the body was formed. As they worked the stone down to form the body and sanctuary of the Sphinx, they must have encountered the large fault that runs N-S and cuts the intended back of the Sphinx towards the rear, where it opens to a space a meter or more wide. This fault is clearly shown in Arch. Lacau photos. nos. CI 52 and 55, members of a series showing the condition of the Sphinx when excavated in 1925-6. This fault was recognized as a natural feature by Mariette, who was the first to clear it; after it was blocked up along the sides with cement and limestone blocks, however, others have taken it to be an intrusive tomb shaft. The fault descends vertically through the entirety of the core-body, through Beds 2 and 3, and can be seen running through the causeway and on the floor of the sanctuary on the S side, and again along the floor on the N side where it opens at one point to a depth of 4-5 m. under the levelled floor.

How did the 4th Dynasty builders deal with this gaping fault in their plan for a finished statue? This and other questions led us to consider that the earliest level of masonry abutting the core-body, a layer of some of the largest blocks added to the Sphinx, may be in fact of Old Kingdom date, so that the body of the statue was finished at that period with the addition of large blocks and limestone-mortar packing. This could have been true at least for the portions of the core formed out of Bed 2. Arch. Lacau photo. no. CI 35 is a close-up of the innermost toe of the N hind paw. A single layer of small (late?) masonry has been denuded for half the height of the toe to reveal the original bedrock (since recovered). The nail or claw has clearly been carved in relief on the face of the parent-rock toe, a cutting later closely matched in the added masonry on the lower part. This would seem to indicate that the paw had been finished from parent rock and detail added. This paw is formed of the harder rock of Bed 3 passing here through the lower part of the core-body. On the other hand, Arch. Lacau photo CI 31 shows the S hind paw as it was being cleared of sand and rubble. It looks as though this paw was almost entirely formed of large blocks of limestone, which were found tumbled about in the sand and rubble. This paw is located about where the hard stone of Bed 3 disappears in a downward slope to the S.

The picture of the origin of the Sphinx that emerges, then, is one of work stopped at various stages. At the time work was abandoned, quarrying had formed most of the Sphinx sanctuary and its core-body. The extracted blocks were taken directly to the E for the building of the Sphinx Temple on the lower terrace. Finishing work was completed for the interior of the temple, which was laid with an alabaster floor and granite sheathing. Parts of the exterior walls were still being worked, a last few core-blocks for the NW corner of the temple having been moved from the cutting for the N side of the sanctuary in its NE corner. Rough quarry work was still in progress to form the N line of the sanctuary and the back W end. Meanwhile, the head of the Sphinx was completed in the hard stone of Bed 1. The softer core of the body was being packed with limestone and mortar - debris in some cases - and the contours of the statue were finished off to varying degrees by a casing of large slabs of stone added to the core.

There is, however, a serious impediment to this view. Except for the prominent boss on the chest, we have nowhere observed any kind of working marks on the core-body, either in the way of tool marks or of surfaces that would seem to have been left by rough quarrying activity. Neither have we found any profile on the core that would appear to be of finished sculpture. This might easily be explained by saying that the part of the core-body now showing - almost entirely of the very soft Bed 2 stone - has been eroded so badly that all such traces have disappeared. Even so, in the cross-sections showing through the successive layers of masonry added to the core, one would expect

such traces to show under the earliest level of stonework had it been added soon after the core was formed, thereafter protecting the profile of the parent rock. But on the face and profile of the core in such cases (Figs. 3, 4) there are no observable indications of parts of a finished profile or of working marks. Rather, the profile of the core seems in all cases to be one of severe erosion, leaving the softer yellowish bands and harder intermediate strata showing a profile of successive rolls and undulations. These considerations would seem to indicate that the core-body of the Sphinx was already severely eroded when the earliest level of large-block masonry was added to it.

This idea is supported by features toward the rear of the statue, on the upper part of the N hind flank (Fig. 12) and on the rump, where large boulder-like chunks of the core have nearly fallen only to be arrested by the earliest level of large stones. The most graphic of these features is located on the broad ledge of masonry toward the upper part of the rump. While at first sight it appears that the core of the rump has been cut back in a horizontally-stepped pattern of deep notches, closer examination reveals that the notches have been formed by large pieces of the core separating from fine transverse faults. One such piece, in the form of a large boulder, still lies at an angle of rest after it separated from the core, leaving a space of 25 cm. at the top and 2 cm. at the bottom. Abutting the separated boulder are the large slabs of the earliest masonry, such that it is clear that the masonry was laid after the boulder had separated. It seems necessary to conclude, therefore, that the core-body of the Sphinx was already in a severe state of erosion when the earliest level of masonry was added, either completing sculpture left unfinished in the Old Kingdom, or restoring the original contours of a statue finished from the parent rock alone.

To seek agreement with known historical facts, we should probably expect the earliest restoration to have been done in the New Kingdom, more specifically in the 18th-Dynasty reigns of Amenhotep II, who built the mudbrick temple of Haroun-Horemakhet facing the head of the Sphinx in the NE corner of the sanctuary, and his son Thutmose IV, who records on his large granite stela erected at the base of the chest between the fore-paws, that he excavated this "very great statue of Khepri which rests in this place" from the sands that had filled the sanctuary to the level of the Sphinx's neck. We hope that a detailed architectural study of the chapel between the forepaws, of which Thutmose's stela forms the W side, and its articulation with the masonry added to the core, will shed more light on this question.⁶

If the Sphinx was covered to the height of its neck until the reign of Amenhotep II or his son Thutmose IV, it must have been in this state for a considerable period prior to their time. Although there is no information on the cult of the Sphinx proper prior to the New Kingdom, we might hazard the speculation that the temple and sanctuary remained more or less open until the end

of the Old Kingdom. We could further speculate that the temple and sanctuary were abandoned and began to fill up with debris and drift sand at some point in the First Intermediate Period or Middle Kingdom, when, it seems, the Giza Necropolis was largely unattended. It was Ricke's conclusion that there were two different periods of robbing which affected the Sphinx Temple, the earliest in the reign of Amenemhet I when the alabaster flooring and granite sheathing were ripped from the interior (1970, 25). If we assume that a sand covering would act more to protect than to erode the statue, this leaves less than a millennium, or perhaps half a millennium, for the core to have eroded to the condition shown by the profiles under the earliest added masonry.

In this regard, one other feature might be noted. Simple observation and the scale photogrammetric side elevations of the Sphinx suggest that the tail of the nemes headdress, long missing, should have brought the pleats of the headdress together and ended at a point about 2.5 to 3 m. above the present top of the back behind the head (Fig. 10). The top of the back is fairly flat and regular and shows the phasing out of Bed 1 in which the head was cut. Either two and a half or three meters of the top of the back have disappeared since the origin of the Sphinx - which seems unlikely, since this would have been entirely of hard Bed 1 stone, as is the well-preserved head - or the top of the back was intended to have been built up with masonry from the beginning.

Notes

- * The American Research Center gratefully acknowledges the support of the Edgar Cayce Foundation for the work of the Sphinx Project.
- 1. The Sphinx Temple was architecturally recorded and studied to a high standard, with an interpretive reconstruction, by the Schweizerisches Institut für ägyptische Bauforschung und Altertumskunde in Kairo from 1965-67 under Ricke (1970). Because the principle focus of this study was the temple, the Sphinx itself and its sanctuary, while accurately planned, were published at the small scale of 1:000.
- 2. Clark and Engelbach (1930) have suggested this beam is a "sleeper" to be laid in front of the sled on which the colossus is being transported. If the notches are deliberate rather than merely indicating the rough side of a beam, they may have functioned in conjunction with wedge-shaped cuttings like those at the Sphinx.
- 3. Such cuttings and holes were noted as long ago as 1837 in the foundation of the Great Pyramid by Howard Vyse (1840-42, 205-6). Nour, et. al. (1960, 6, Pls. IX,A, XXIV B) recorded cuttings very similar to those at the Sphinx at the ends of the boat pits on the S side of the Great Pyramid and suggested they were for moving blocks of stone.
- 4. If the portions of the divine beard found in Caviglia's 1818 excavation at the base of the chest are original to the core of the statue, as Ricke suggested (1970, 33), rather than a New Kingdom addition, this will be obvious in the presence of Bed 1 and Bed 2 strata - a point yet to be investigated.
- 5. "Mais, malgré son apparence de puits funéraire, ce n'est qu'une fissure agrandie qui va en s'élargissant, et qui se termine par un vide assez spacieux ménagé précisément dans la plein des cuisses" (1882, 95).
- 6. Reisner (1942, 26), in reference to Baraize's excavation of the Sphinx, stated: "It was definitely determined that the Sphinx was carved from a natural nodule of rock left by the old Cheops quarrymen, and was originally coated with white plaster and painted. It was also proved that the Sphinx was restored twice, with a coating of small masonry over the whole body, the first time by Thutmose IV....and again by a later king probably in the Ptolemaic Period." While the head could have been formed from a nodule left by quarrying done under Khufu, there is little evidence for this, and the quarry that formed

the core-body and sanctuary was likely begun with the purpose of creating the Sphinx. If Reisner meant to indicate that the Sphinx was coated with white plaster and painted in the Old Kingdom, again there is no observable evidence that this is so or that the traces of red paint now observable on the face are original. Rather, the presence of red paint on the second layer of small stonework in many places suggests that the paint on the face, like the outer stonework, was added late in antiquity.

Mark E. Lehner in collaboration with James P. Allen and K. Lal Gauri

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SPHINX-GIZA

FRONT-VIEW

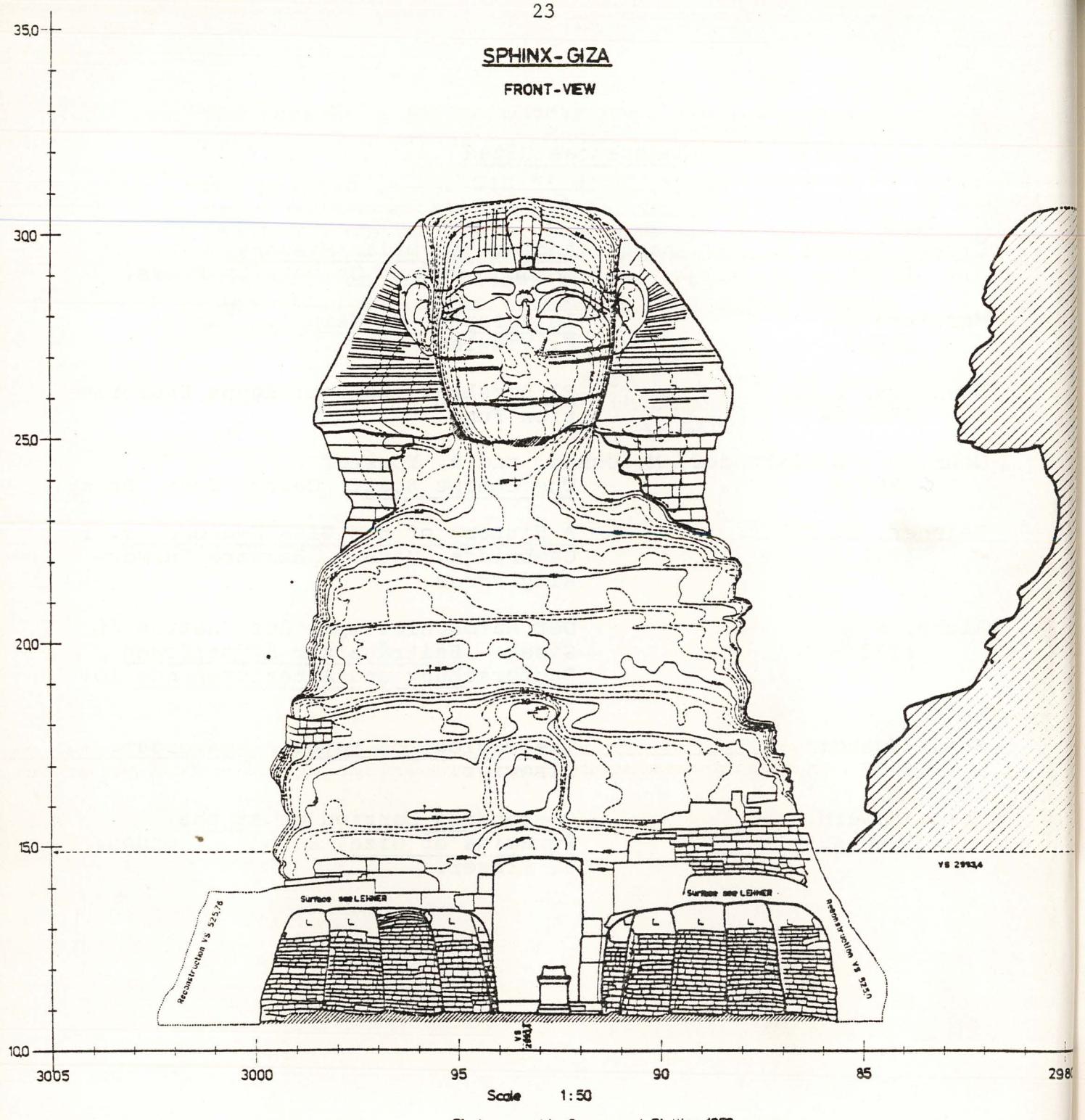


Fig. 1

Photogrammetric elevation: front of the Sphinx.

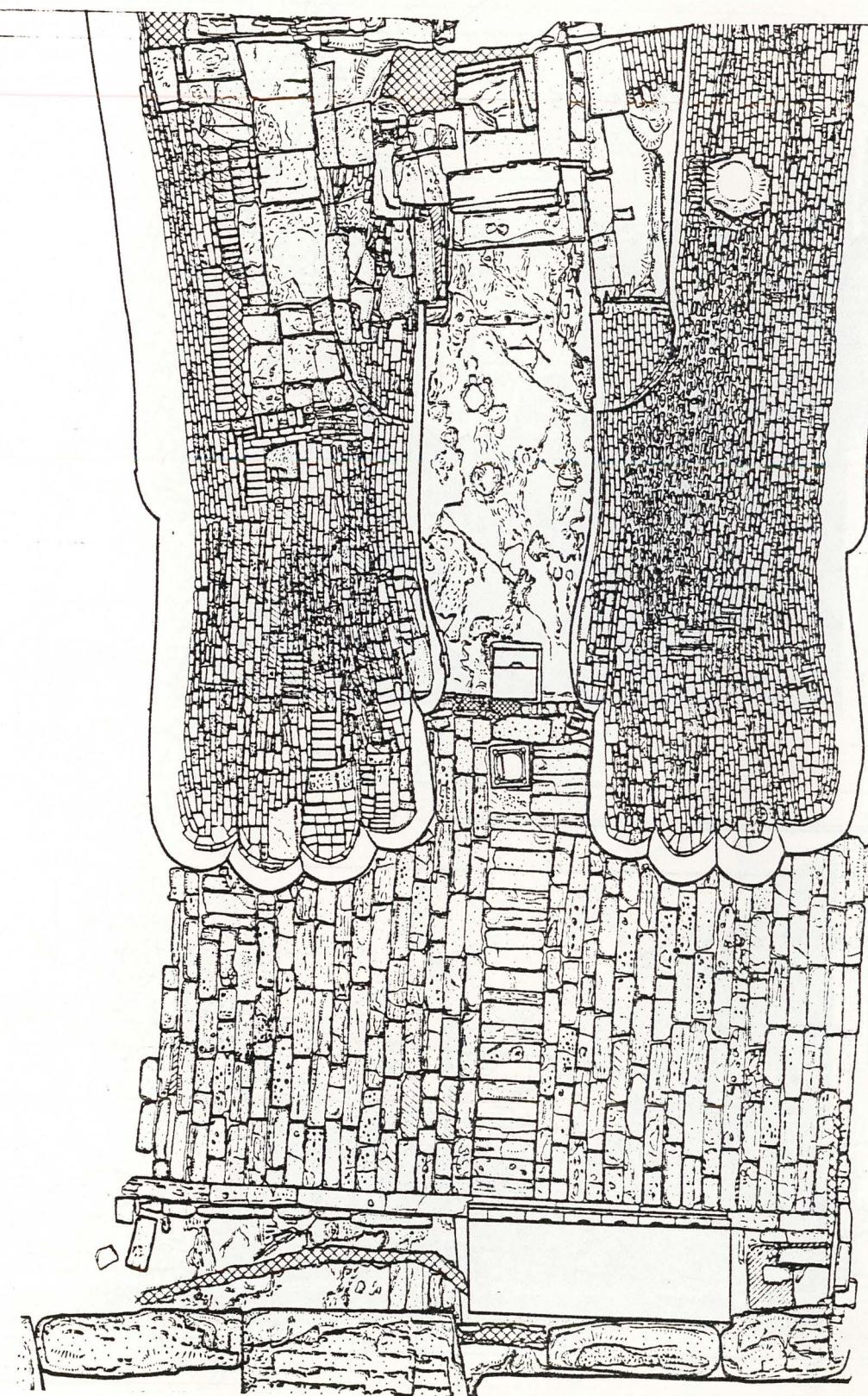


Fig. 2

Plan of the forepaws.

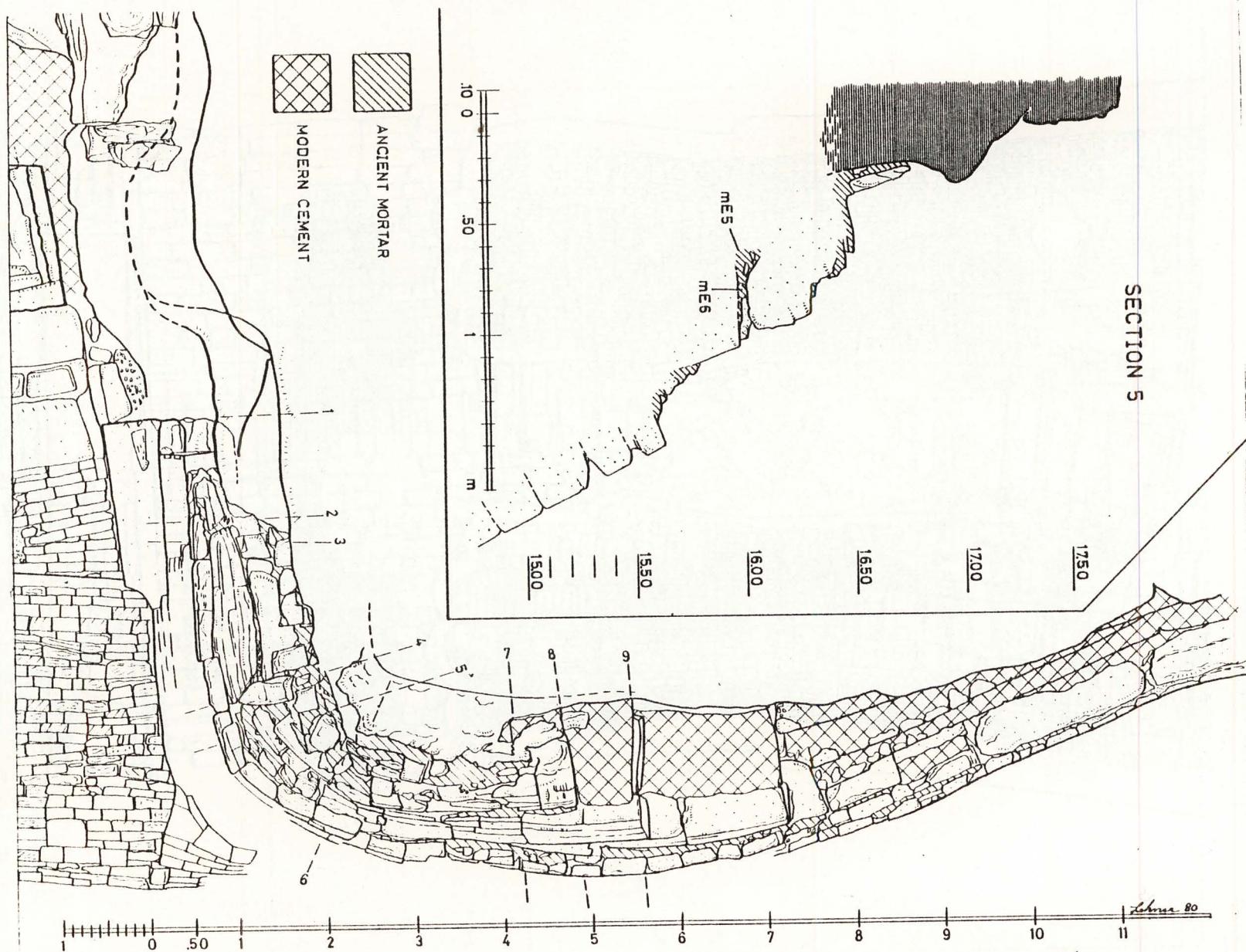


Fig. 3
Stonework abutting the parent-rock core on the N front side of the Sphinx. Inset: 1:20 section.

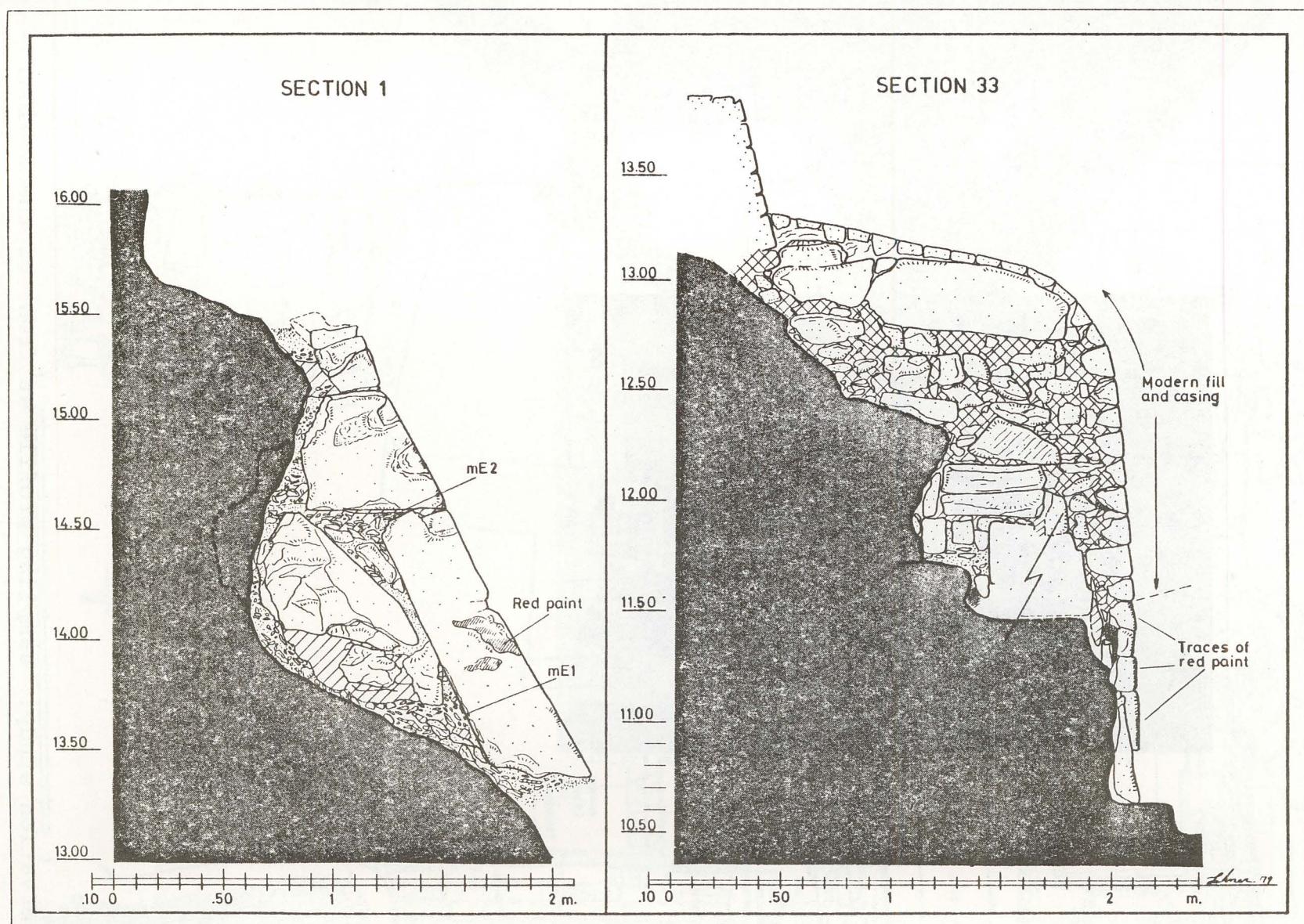


Fig. 4

Section 1: stonework casing and rubble fill at the base of the chest, N side; Section 33: denuded cross-section to inner side of N forepaw. Cross-hatched fill is modern reinforcement, large block at top and masonry at bottom are ancient.

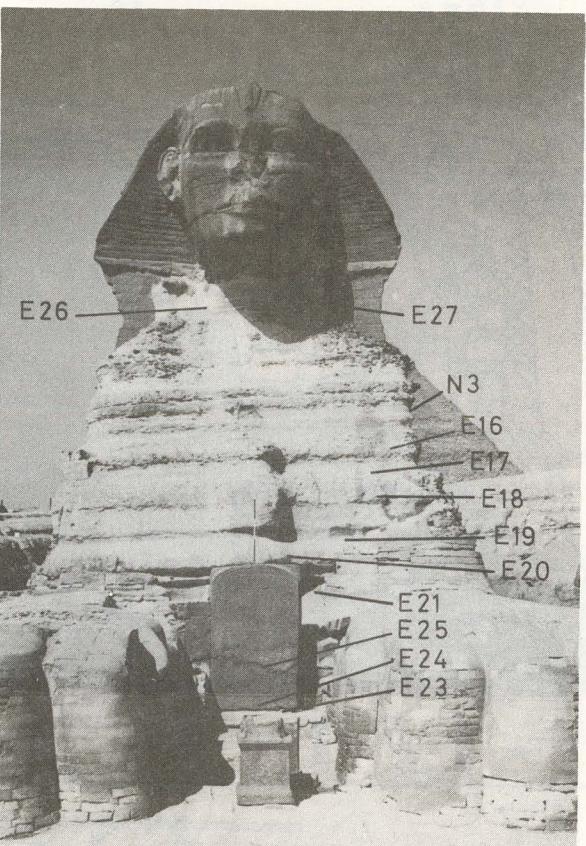


Fig. 5

Preservation study: sampling profile at front of the Sphinx.

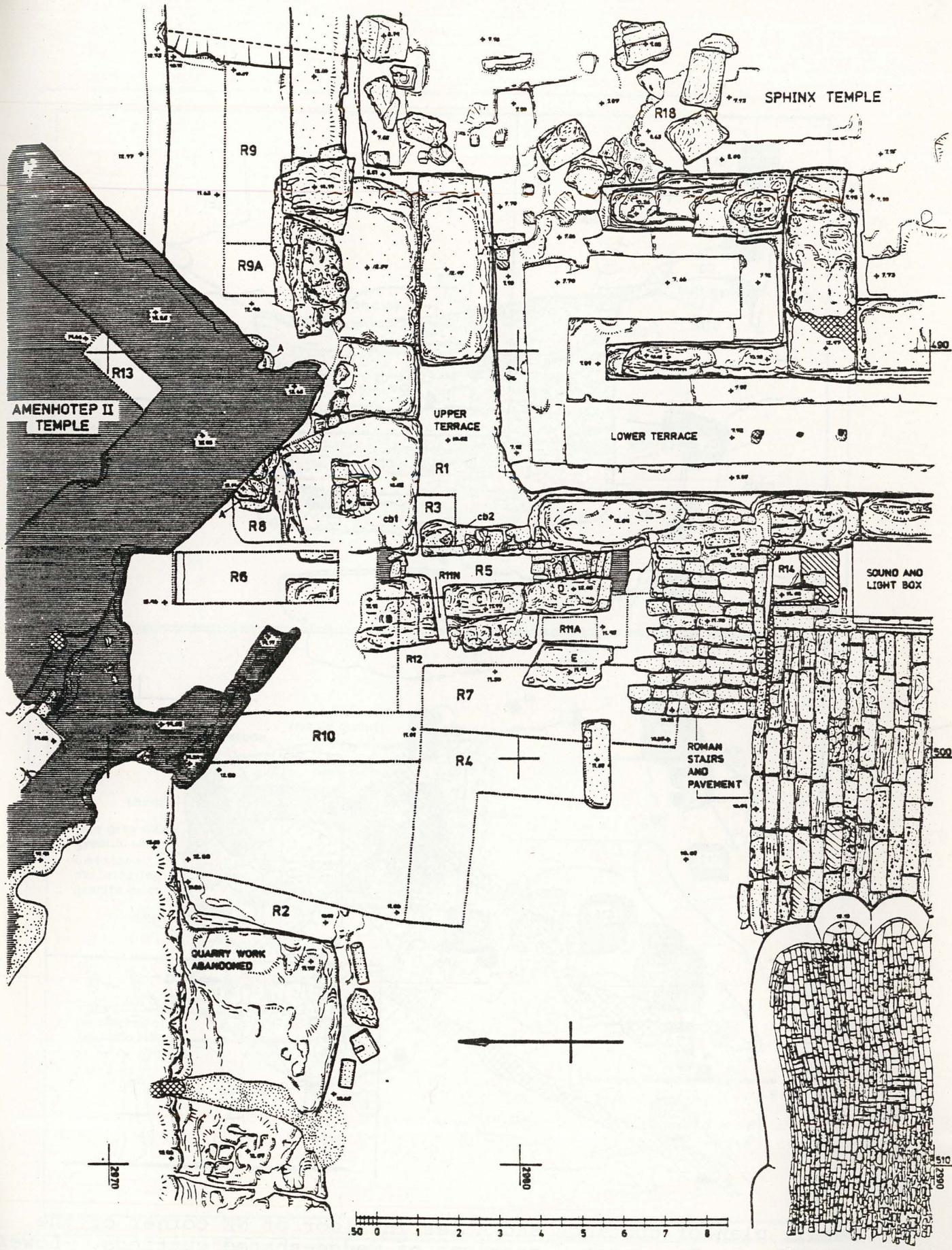
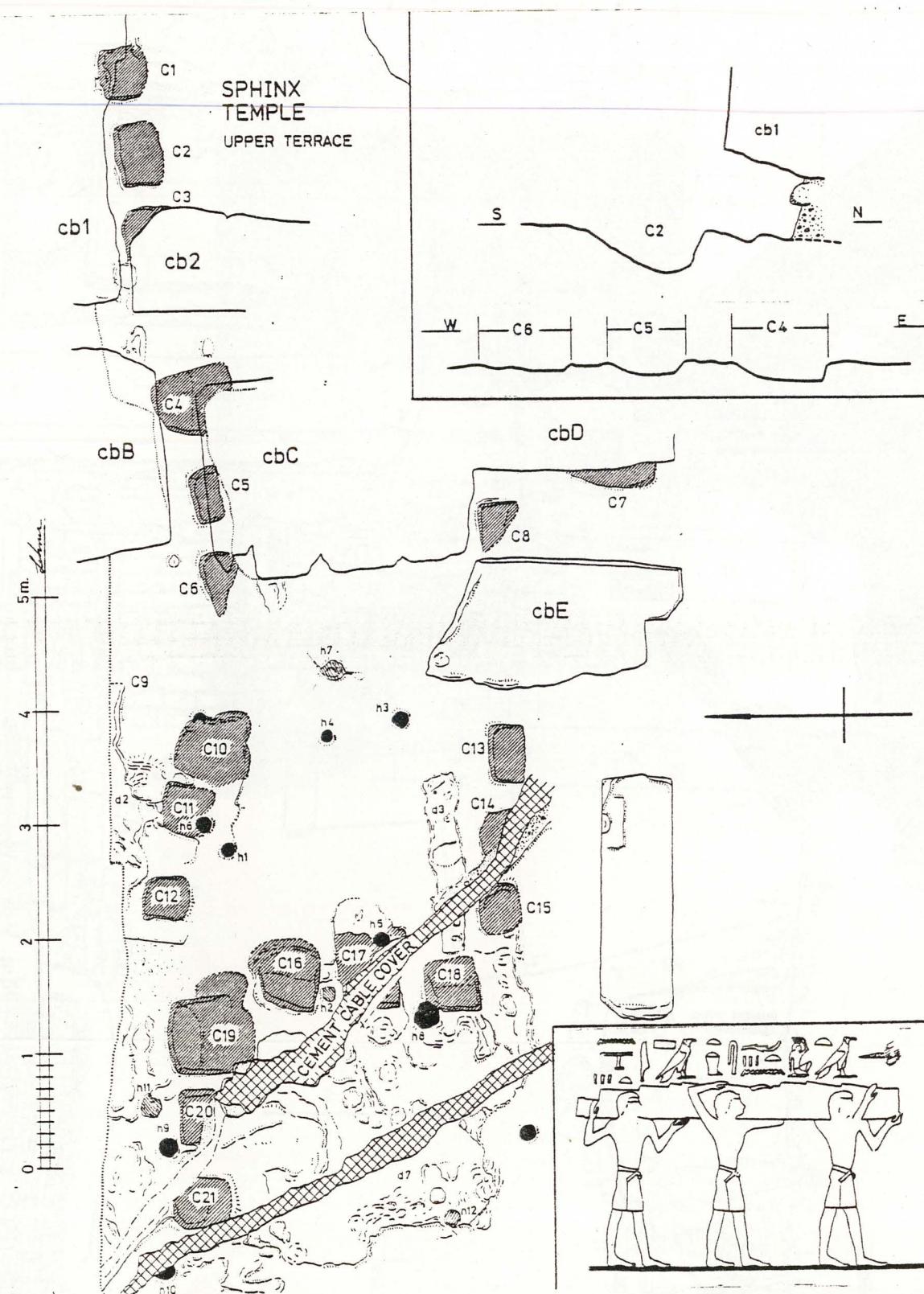


Fig. 6

NE corner of the Sphinx Sanctuary.



Detail plan of cuttings and holes in floor of NE corner of the sanctuary. Top inset: sections of wedge-shaped cuttings. Lower inset: detail of scene of moving colossus, from el-Bersheh tomb of Djehutihotep.

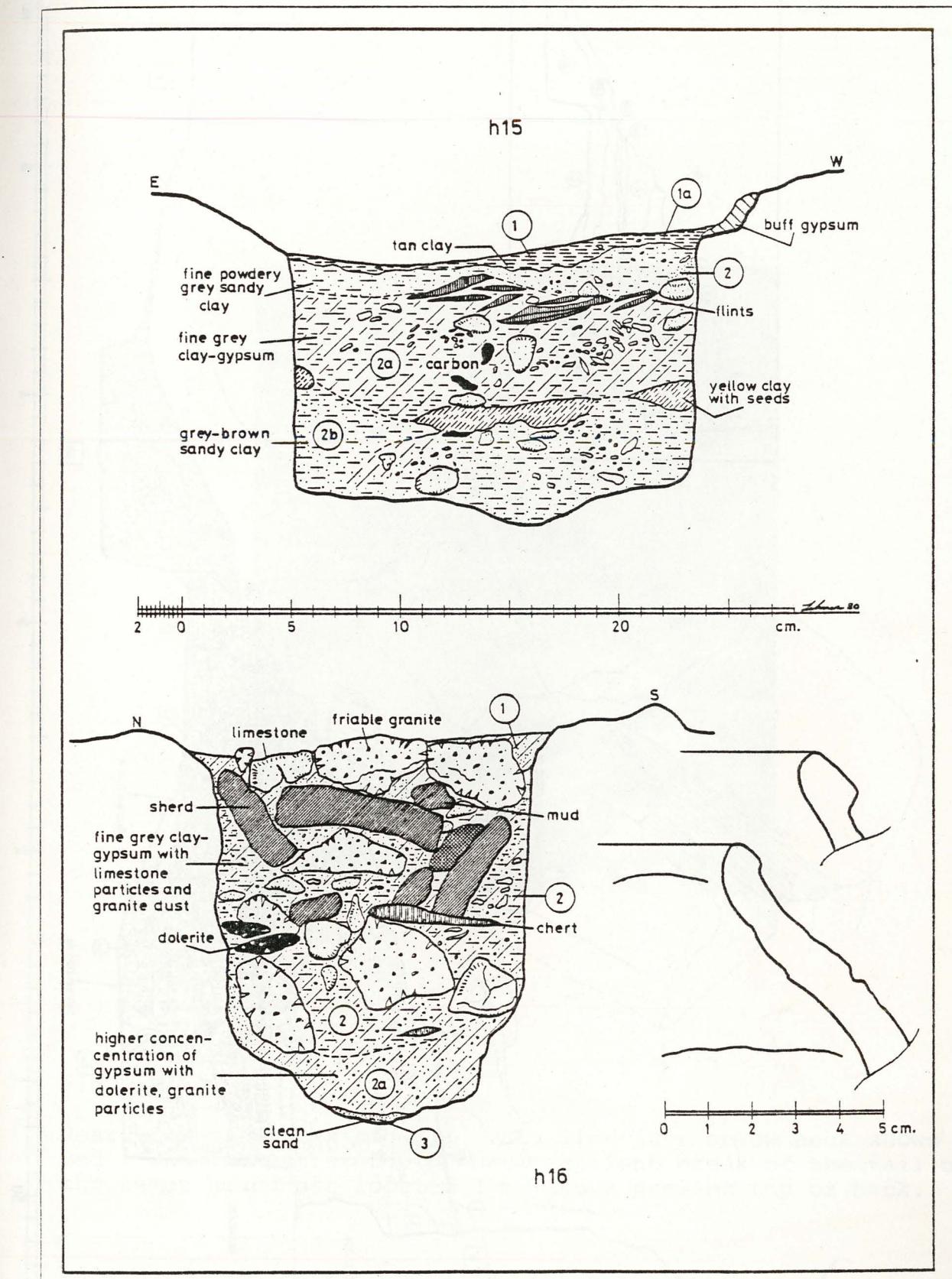
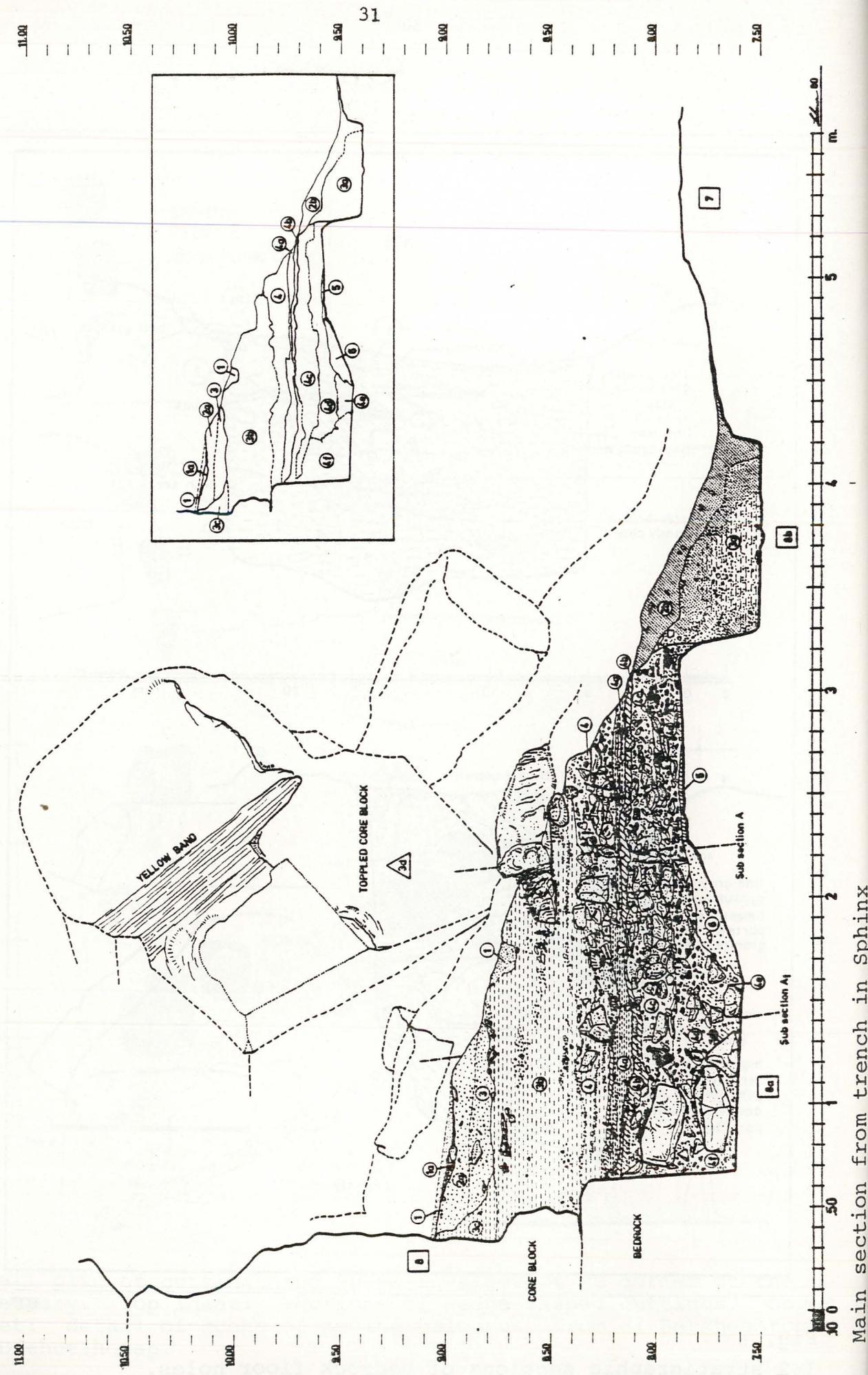


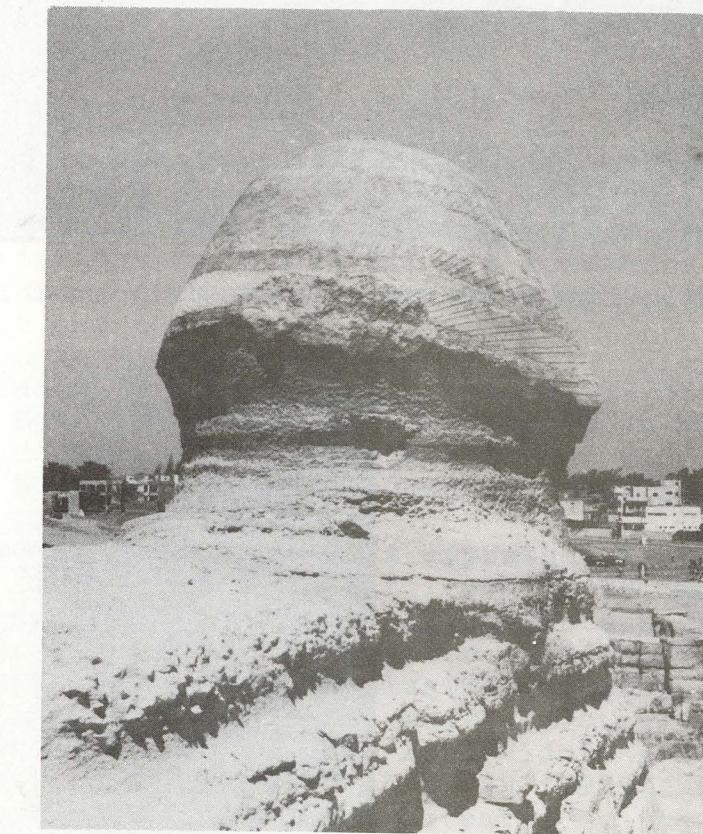
Fig. 8

1:2 stratigraphic sections of bedrock floor holes.

Fig. 9



32



Main section from trench in Sphinx

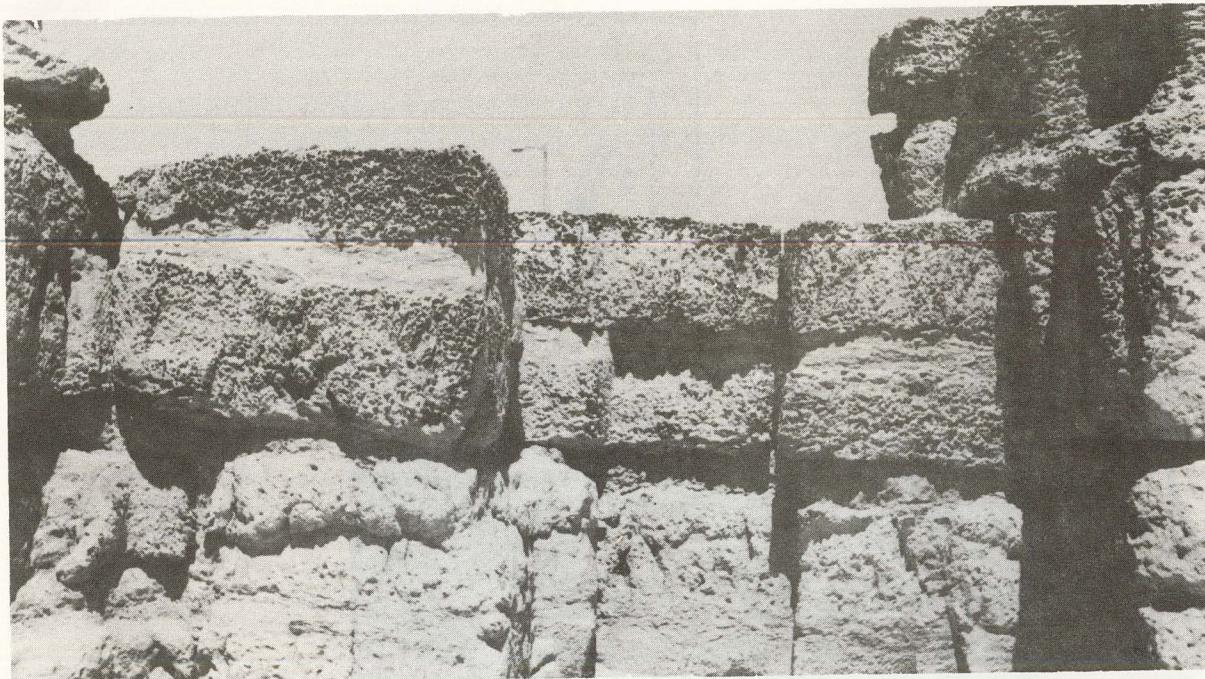


Fig. 11: Sphinx Temple limestone core-blocks forming E niche.

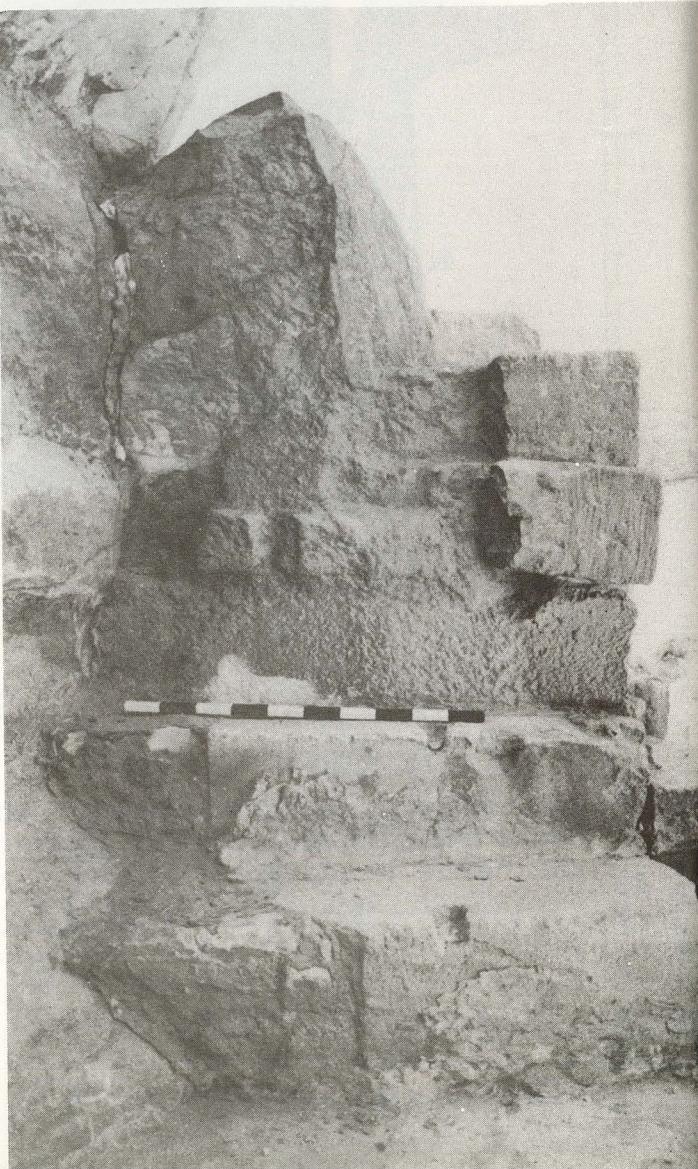


Fig. 12: Large core boulder at upper N hind flank supported by large stone slabs of earliest level of masonry added to the core. These slabs have received a thin cover of modern cement. Later layer of masonry can be seen at lower right corner.

DIALECT FEATURES IN MIDDLE KINGDOM INSCRIPTIONS

The writer decided to begin his investigations of dialect in the ancient Egyptian language with the inscriptions of the Middle Kingdom. The corpus utilized for this project comprises inscriptions on Middle Kingdom monuments and objects of known provenance, primarily of private rather than royal origin, mainly stelae and tombs.

Callender (Middle Egyptian, AAD 2, 1975: 2) has stated that Middle Egyptian dialects "must remain in the background as a factor of uncertainty." On the basis of Middle Kingdom inscriptions, this highly cautionary summation must still stand.

One major reason for this appraisal is that, the more material one examines, the more difficult it becomes to attest linguistic traits on a geographically consistent basis. This includes features which initially were considered promising candidates for regionalisms. One illustration will suffice here. Gunn noted that writings of the suffix-pronoun .sn without n are common in inscriptions from the late Middle Kingdom and Second Intermediate Period from Edfu (ASAE 29 [1929]: 6); Kroeber agrees that such writings are earliest attested in "these texts (Die Neuägyptizismen vor der Amarnazeit, diss. Tübingen 1970: 33 f.), and most recently R. el-Sayed has drawn attention to these writings on stelae from Edfu (BIFAO 79 [1979]: 192). Such orthographies are also found on two stelae from Esna (Downes, The Excavations at Esna 1905-6, Warminster 1974: figs. 35, 45), and the geographical proximity of Esna to Edfu would still make a dialectal explanation attractive. However, n-less writings also occur on several stelae from Abydos (Cairo CG 20630, CG 20450/ JE 30991, CG 20536, CG 20556, CG 20675) and on at least one of unknown provenance (CG 20633). Some of the inscriptions showing the most interesting non-standard forms have no recorded provenance (e.g., CG 20513). Moreover, by far the largest corpus of Middle Kingdom inscriptions of known provenance comes from Abydos; these inscriptions were set up by people from the length and breadth of Egypt, and it remains to be discovered how many were commissioned and carved in their owners' places of origin and how many were of Abydene manufacture.

Another basic observation is that dialect is not the only possible explanation for a number of features which one might be tempted to place under that heading, nor is it necessarily the most compelling. Thus, while certain consonantal alternations suggest dialect, this is not conclusive, especially in light of the unclear geographical situation. (Cf. Goedicke, ZAS 80 [1955]: 32 ff.; Vycichl, ZAS 82 [1957]: 71 ff.; Knudsen, ZAS 88 [1962]: 33 ff.; Watson, GM 37 [1980]: 41 ff.). Moreover, it cannot be emphasized too strongly that a local orthographic/palaeographic tradition need not be correlated with or reflect a local dialect in the spoken language. An apparent local innovation in spelling might very well reflect a pronunciation that had wider geographical currency, but which became part of the scribal repertoire of a particular area -- or which surfaced now and then in different areas. (For a later example, see A. Leahy, GM 31 [1979]: 67 ff.). The writing i for iw in the Middle Kingdom autobiographical inscriptions at Aswan (Urk. VII: 3ff) may well belong to this category (cf. the writing iw for the prothetic i and for the interjection i). Likewise, it is extremely interesting and suggestive that the owner of Cairo stela CG 20541/JE 12644 from Abydos consistently writes his name 'Imn-h3t' and that of his king 'Imn-m-h3t'. However, dialect is not the only possible explanation; we must also reckon with the likelihood of formal court language and of registers of language, questions in which dialect may be relevant, but in which it is not the only factor, or necessarily the determining one.

Lest this assessment be considered too pessimistic, note that the writer has no doubt that there were local dialects in the ancient Egyptian language, as the scribe of Papyrus Anastasi I clearly states. However, it is far too easy to use "dialect" as a catch-all for a variety of features which may represent situations of very different types, and it is our conviction that no meaningful progress can be made in the scholarly study of Pharaonic dialect without the clearing away of methodological underbrush. The forthcoming detailed publications of this project will include an analysis of the variant writings of Middle Kingdom inscriptions, commenting on their significance (or lack of it) for phonology and dialect, and an exploration of methodology for studying dialect in ancient texts. It should also be emphasized that the Middle Kingdom inscriptions, while the substance of the present project, are only a part of the overall inquiry into ancient Egyptian dialect. It is quite possible that later materials will yield more conclusive results; thus one eagerly anticipates the publication of the New Kingdom orthographic corpus mentioned by Ward (ZAS 102 [1975]: 67), which again only represents a small part of the work still to be done in this intriguing and elusive field.

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*Funded by the Smithsonian Foreign Currency Program. For previous work on dialect in ancient Egypt see Brunsch, Enchoria 8.1 (1978): 67 ff. and the references there cited, as well as Osing, LdA: cols. 1074 f.; Reich, Mizraim 3 (1936): 65 ff.; Davis Syntax of the Negative Particles bw and bn in Late Egyptian (MAS 29, 1973): 199 ff.; Johnson, Fs. Hughes (SAOC 39, 1976): 105 f.; Roquet, Hommages Sauner I (1979): 437 ff. I would like to thank my colleagues, especially Pascal Vernus, for fruitful and valuable discussions on the subject.

AL-DAYLAMI'S "LOVE TREATISE"

During the academic year 1978-79 the American Research Center in Egypt supported my project to make an annotated translation of the 'Atf al-alif al-ma'lūf of 'Alī b. Muḥammad al-Daylāmī (d. ca. 1030 A.D.). The work is a mystical treatise on love belonging to the Muslim Neoplatonic tradition. Al-Daylāmī's 'Atf is not the earliest Arabic work on mystical love. Al-Muhasibī's "Chapter on Love," for example, is earlier. But it is the earliest text of any length on the subject, and it contains a great deal of important information, including not only the author's views but also the opinions of earlier mystics, theologians, philosophers, and belletrists. Dating as it does from the late tenth or very early eleventh century A.D., it is our main source for the study of the development of Muslim teachings on mystical love up to that point as well as a significant source for the history of the theory of profane love. The book is particularly important because it reflects the influence of the doctrine of the mystic martyr al-Ḥallāj (executed 922). Works of heterodox tendency were at times suppressed or, at the least, seldom copied. As a result, the views of certain schools have to be reconstructed largely from relatively one-sided polemics against them. The 'Atf al-alif survives in a single copy.

The manuscript of the 'Atf al-alif, owing to its great value as a source for the opinions of early mystics and philosophers, has been consulted by modern scholars on more than one occasion. Both Richard Walzer and Louis Massignon, for example, used the work. In 1962 an edition of the text by J.-C. Vadet appeared in Cairo.

Although only one manuscript of the 'Atf is extant, the text is very corrupt, and there are many passages with omissions where considerable extrapolation is necessary. Hence one reader is likely to reconstruct the work quite differently from another. In the course of translating, as this problem became increasingly apparent, I determined that it would be preferable to bring out a new edition that would correspond more nearly to my reading of the manuscript and, hence, to my translation.

At this point I contacted Dr. Hasan Abdel Latif of the Department of Islamic Philosophy at Dār al-'Ulūm regarding the possibility of working together. We agreed to collaborate on the new edition, which we began while I was still in Cairo. Dr. Abdel Latif has also made substantial contributions to the translation. The translation remains primarily my responsibility, however, but the edition is strictly a joint project. By means of comparison with parallel texts--where they exist--and by a certain amount of educated conjecture, Dr. Abdel Latif and I are attempting to restore the text as nearly as possible to its original form. At the present time the translation is about two-thirds, and the edition one-half complete. The translation is ahead of the edition because it was begun first. The final draft of the whole translation will not be prepared until all textual emendations for the edition have been decided. Both the Arabic and the English versions will be accompanied by introductions and thorough indexes.

When working on the edition, Dr. Abdel Latif and I prepare the text separately, each concentrating on certain aspects of the work. Then we meet together and discuss the text line by line before choosing a final reading. We need two to three months together in the same location to complete this process, and we hope to be able to finish the task next summer in Cairo. I am applying to several funding agencies for support of this last stage of the project.

While in Cairo on the American Research Center in Egypt grant, I was also able to complete and revise my translation of the Egyptian novel The Seven Days of Man (Ayyām al-insān al-sab'a) by 'Abd al-Hakīm Qāsim and to do some preliminary investigation of a new project on Muslim songs of praise (madīh) in Egypt and the Sudan.

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*Funded by the Smithsonian Foreign Currency Program.

ARCHAEOLOGY IN EGYPT: 1980

MUT TEMPLE EXPEDITION

The 1980 Season of the Mut Expedition of The Brooklyn Museum, with the assistance of the Detroit Institute of Arts and under the auspices of the Center, took place from February 14 through April 9. It was the Expedition's fourth season of excavation following a preliminary survey of the site.

The 1980 Season was devoted mainly to the completion of our initial program for work in the Precinct. During the first four to five seasons of excavation we had planned to determine the nature of the monuments and terrain in the Precinct's "Front" area, namely the area bounded by the First Pylon of the Mut Temple on the south and by the enclosure walls on the north, east and west.

By the end of the 1979 Season we had added the following to the plan of the "Front" area.

1. The Forecourt of Temple A. This temple, in the northeast corner of the Precinct, had long been known to have a forecourt, but its plan had never been determined. The Forecourt was found to have been fronted by a pylon of mud brick, faced with limestone, and constructed no later than the reign of Ramesses II. Before it stood two colossal statues, possibly usurped, inscribed for that king, and two colossal stelae. One stela contained the abridged version of the Hittite Marriage Stela and was discovered by Pillet. The other, discovered in 1978, bears a text describing Ramesses II's work on a temple (presumably Temple A) of Amun located in Ipet (here probably the Precinct). The Forecourt had side walls and colonnades of sandstone which post-date Ramesses II and probably date no earlier than Dynasty XXV; but within the Forecourt are the now partially excavated remains of earlier foundations.

From its (now) Second Pylon back, and with the exception of its Third Pylon (decorated by Ramesses II), the present Temple A would appear to be, as originally proposed by Barguet, primarily a work of Dynasty XXV with some refurbishing done during Dynasty XXX and the Ptolemaic Period (at least the reign of Ptolemy VI is attested by inscription). The major evidence of Ptolemaic work preserved *in situ* in the temple is the decoration of the rear wall of the main sanctuary.. Although badly preserved one can still make out a figure of the goddess, a child on her lap, flanked by two goddesses, one of whom is making *nini*, two ram-headed gods and two other gods. Such decoration could easily be interpreted as indicating that at this time the Temple functioned as a Birth House; and in an article in a forthcoming issue of *Chronique D'Egypte*, Herman De Meulenaere will present the results of his own research which indicate that Temple A was probably a mammisis as early as Dynasty XXI.

Temple A's Second Pylon, which constitutes the rear of the Forecourt, is constructed almost entirely of parts of earlier monuments. The reused blocks already visible include inscriptions of Dynasty XVIII, but the majority of them would appear to be Ramesside. The most interesting of these is a corner block. One of its inscriptions mentions the "Great Doorway Ramesses Mery Amun...". Its other text is dated to Ramesses II's 37th year and refers to *hwt (-ntr).f nt hh m rnpwt R'mssw Mry- Imn 3h n Imn mn...* It is tempting to see this block as forming part of the doorway in the temple named in the inscriptions, apparently the XIXth Dynasty Temple A. Also reused in the construction of this pylon are parts, including one head, of at least three colossal statues which we believe may have been taken from the Temple of Ramesses III to the west of the Precinct's sacred lake. If so, that temple had become a quarry by Dynasty XXV.

Built into the ruins of Temple A's First Pylon we found the remnants of an apparent work installation including bins, drainage systems which led into the Forecourt, and the lower half of a statue of the High Priest of Amun, Horemakhet, a piece which had apparently been used upside down so that the underside of its base could serve some other purpose requiring a flat surface. It is hoped that these remains, together with the continuing investigation of other Roman installations in the Precinct, will ultimately provide us with a decent picture of Mut in one of the later phases of the site's history.

2. The Approach to the Forecourt. Just before the entrance in Temple A's "new" First Pylon are the scanty remains of a small porch with two rows of three columns each. Its date remains uncertain, but an attribution to Dynasty XXV or XXVI seems a distinct possibility.

To the north the pedestals of the sphinxes re-erected by Pillet were found to contain a number of unpublished inscriptions. Some are Ptolemaic but two are earlier. One, most probably part of a sphinx base, is a dedication by Horwedja, Great Seer of Heliopolis. Another, perhaps part of a sphinx base but just as possibly part of some other monument, is a *htp di nsw* formula on behalf of a Fourth Prophet of Amun. The priest's name is missing, but the size of the piece and the style of the inscription lead us to believe that it may be attributed to Mentuemhat.

The Ptolemaic porch before the east wing of the Mut Temple's First Pylon was found to consist of two rows of seven columns each and to have an alcove, presumably for a gatekeeper, by the entrance to the Temple. Prior to excavation we are assuming that the west porch closely resembled the east porch, but their plans were not identical.

Just to the east of the east porch we have begun the excavation of habitations and/or storage magazines of the Roman Period which were built up against the face of the Pylon. At the east

end of the Pylon, just where Lepsius drew it, is a small undecorated (except for a graffito of a baboon facing east) sandstone gateway opening north-south. The gateway's date is still uncertain. However, there are certain indications that the adjacent part of the Pylon was repaired in the Ptolemaic Period or later, perhaps in connection with the erection of the gateway.

3. West of the Main Axis of the Mut Temple. Here the Expedition has cleared most of Structure D: a three-room chapel of the reigns of Ptolemy VI and VIII. The rear wall of the Chapel is constructed in part of relief-decorated limestone blocks of apparent XVIIIth Dynasty date.

Immediately to the southwest of Chapel D we found a gateway inscribed for King Taharqa. This gateway opens from west to east, and its axis is almost perfectly in line with the central axis of Temple A.

Starting in the Taharqa Gateway and extending towards the west and south are the remains of habitations whose excavation shall remain an on-going task for several seasons to come. At least some of their building phases date to the Roman Period. In one deep sounding made by the Taharqa Gateway they were found to rest upon more than a meter's accumulation of debris rising from the floor level of the Gateway and also resting upon the ruins of the mud brick wall running north off the Gateway. Whether this debris and these habitations overlay the remains of earlier religious structures remains to be determined.

One of the major tasks of the 1980 Season was the plugging of the gap in our map of the Precinct in the area between the Taharqa Gateway and the west wing of the First Pylon of the Mut Temple.

Prior to 1980 we had begun the clearance of the ram-sphinxes before that wing of Mut's First Pylon. Two of these sculptures had been found to bear, on the small figures of the king protected by the rams, two columns of text mentioning King Painedjem I and his wife. By one of these statues we found a block, possibly part of a base, inscribed for Painedjem as High Priest of Amun but also adorned with a badly damaged text possibly naming one of the Roman emperors. The four ram-sphinxes cleared prior to 1980 were those closest to the entrance in the Pylon and were quite evenly and widely spaced before the Pylon. Given their positions we expected to find two more sphinxes before the Pylon. We found four, jammed tightly together, and, extending west past the Pylon, the ruins of two more stone structures which may well be the remains of sphinx bases, possibly for two of the rams already unearthed. Three of the four new sculptures were of the same type as the first four, and one of them bore similar traces of a Dynasty XXI usurpation. One sculpture, the westernmost, was a true sphinx with a fragmentary inscription mentioning Nectanebo II.

The west end of the Mut Temple's First Pylon was found to have been decorated with white plaster, and no evidence has yet come to the light to indicate that the Pylon ever was, as was the case for the mud brick First Pylon of Temple A, faced with stone.

Abutting the west end of the Pylon is a large mud brick wall. This wall runs toward the west, all but certainly, to join the wall running off the Taharqa Gateway. Unfortunately, the mound between these two segments of wall has been eroded away to a level below that of the wall, and it is therefore impossible to connect them physically or to determine whether or not the wall was broken by a north-south gateway. The latter question is of particular interest to us because it is possible that in Dynasty XXV the existing Taharqa Gateway constituted a major entrance to the "Front" area of the Precinct, and that - if there was only the one gate and the wall running off its north wing turned a corner towards the east to follow more or less the line of the present enclosure wall - the northwest sector of the Precinct was not of great importance (a theory possibly supported by the abandonment of Temple C). At any rate, we are looking forward to the time when we can determine what might rest beneath the houses in this part of the Precinct, when we can attempt to corroborate the existence of the north-south wall with east-west gate which Lepsius drew between the Temple of Ramesses III and the Sacred Lake, and when we can also investigate the two mud brick walls, one on its rear and one on its west side, parallel to Temple C. The latter of these two walls is cut by the present enclosure wall and could represent an earlier enclosure wall for the Precinct or for the Temple. The investigation of these walls should clarify more than a few points concerning the history of the Precinct.

Just to the northwest of the ruined sphinx bases (?) located west of the First Pylon of the Mut Temple is a ruined structure built of sandstone and granite blocks, some of which at least, once formed part of a structure or structures of Ramesses II. As so little of this construction is preserved, it is difficult to determine either its date or function. As it is more or less paralleled by an even less well-preserved structure, also reusing Ramesside blocks in its construction, some ten meters to the west, it seems possible that both may prove to be contemporary and - to judge from their location - that they could have constituted part of an approach to Chapel D.

The southern portion of the easternmost of these two stone structures is covered by a wall of mud brick running east-west and which abuts the last of the sphinxes, namely the one of Nectanebo II. Just to the west of the ruined sphinx bases this wall turns a corner towards the south and runs to abut that segment of the Taharqa wall running west from the Pylon. The north face of the east-west segment of this wall was provided with a sandstone facing before which was set a statue of Sakhmet. The interpretation and precise dating of this construction will, it

it is hoped, come from further excavation in the area. At present, our best guess is that it represents the remains of a Ptolemaic or Roman attempt to improve the appearance of the Temple of Mut by walling off damaged structures and creating a new partial facade.

Towards the end of the Season we began to uncover, just to the southeast of Chapel D, the remains of a white painted earth floor and a circle of stones within a circular mud brick wall. Much more work is needed in this area, still mostly covered by high mounds of debris, before the function of the circular walls may be identified and the floor associated with any of the known structures in the area. At present, it seems likely that the floor predates Chapel D, for which we have the remnants of a possible stone floor outside the Chapel. Inasmuch as there is a XIXth Dynasty depiction of the Mut Temple which shows a row of trees in this general area of the Precinct, we would be pleased if the circles of stone and brick framed a tree-hole.

During the 1980 Season we also conducted a further investigation of what we had believed to be two walls of mud brick (with some baked brick and stone) flanking the south side of the Forecourt of Temple A. Here we opened a ten-meter square in the hopes of defining the southern face of the outermost of these two walls and to determine what lay beyond it. Instead we found the brick to run throughout the square, a fact we interpret as indicating that the southernmost of our two parallel walls was not a wall but a paving or platform.

In the Second Court of Temple A we discovered that a sandstone block, long visible but whose upper surface was covered with a layer of earth, was decorated with sunk relief representations of Nitocris offering to Amun, Mut and Khonsu. As this block was located immediately to the west of the small chapel Chevrier had drawn in the colonnade before the south wing of the Temple's Third Pylon, we re-investigated the scrappy remains of that structure. The results obtained were as follows: 1) The realization that the structure displays several phases of construction; phases which will need more study and, as very little is preserved, luck to sort out. 2) That this chapel did not, as indicated in the old plans, always terminate at the line of the columns running down the south side of the court. Rather, during at least part of its history, its side walls extended to the southern side wall of the court. At that time the rear wall of the chapel was the scene described in Porter and Moss (vol. II², p. 271) as "Double-scene, left half, seated god with goddess and soul of [Nekhen?], right half, goddess with soul of Pe": decoration which we prefer to interpret as showing a Divine Consort before a god and goddess (Amun and Mut?) with all the figures being flanked by the demi-gods. As we believe this scene probably to be a work of Dynasty XXV we would suggest that the Nitocris block was a later addition to the chapel. On the other hand, it is also possible that the chapel predates Dynasty XXV, that

during Dynasty XXV it did not extend to the southern side wall of the court, and that it was not until Dynasty XXVI that it was rebuilt to include the scene just described. At any rate, during Dynasty XXV and/or Dynasty XXVI the structure would appear to have been a chapel dedicated to a Divine Consort or Consorts located within a larger structure dedicated to the theme of divine birth.

Towards the end of the 1980 Season we cut the tall grass obscuring the rear half of the Mut Temple as part of our program to record all visible decoration within the Precinct. This resulted, among other lesser discoveries, in the realization that the south side of the Second Court was rebuilt after the reign of Ramesses IV; and it appears likely that this reconstruction, which may include much of the rear half of the Mut Temple, was the work of Dynasty XXV. This, together with the Taharqa Gateway and a Dynasty XXV date for much of the present Temple A, adds considerably to our picture of the Precinct (and to building at Thebes in general) under the Kushites. Benson and Gourlay earlier reported that a few XVIIIth Dynasty blocks were reused in the construction of the south side of the Second Court, but it appears as if the number of such blocks is larger than they indicated. The blocks are parts of large pillars decorated on four sides but only parts of whose decoration is more than barely visible. Tuthmosis III is sometimes named and represented, but not all the decoration appears to be attributable to him. The Expedition has not yet undertaken any excavation within the Mut Temple and does not contemplate doing so in the immediate future. Rather the main task awaiting us is the completion of the excavation already begun; the restoration, to the extent both possible and desirable, of the monuments in question; and the updating and publication of a report on our work written prior to the 1980 Season but which could not be published at that time. However, we are pleased that, prior to any excavation within the Temple, we have made some progress in elucidating its history and that there seems to be a reasonable chance that the present Mut Temple may harbor within its floors significant remains of its earlier incarnation.

R. Fazzini & W. Peck

MENDES

The eighth season of excavations at the site of ancient Mendes (modern Tell el-Rub'a) took place from May 5 to July 10, 1980. This season was sponsored by the Smithsonian Institution, the Institute of Fine Arts of New York University, and Phillip Morris, Inc.

The staff included: Bernard V. Bothmer and Donald P. Hansen, project directors; Karen L. Wilson, field director; Susan J. Allen, pottery specialist; James P. Allen, epigrapher; Lawrence Becker, conservator; Victoria Landy Solia, registrar and archaeologist; Marjorie Venit, draftswoman and archaeologist;

Laura Gadbery, Joan Huntoon, Sally Johnson, Joseph Josephson, Alan Safani, and Helen Siegel, archaeologists.

This was the second phase in a project which began during the summer of 1979 and had as its primary goal the completion of the ceramic and artifactual sequence already begun for Mendes. Previous excavations in 1964-66 and 1976-78 had established an extensive Archaic to First Intermediate Period and Late Period sequence, but remains of the intervening periods had not been excavated in any quantity on the mound. A second goal of the project was to investigate an area which lay outside the great enclosure walls of the sacred precinct, within which previous work had concentrated.

At the beginning of the 1979 season, several high rises on the southern portion of the mound were investigated. The ridge chosen for excavation appeared to have terminal occupation of the late sixth century and included the highest preserved point on the mound, which stands 17.68 m. above sea level.

Although most of the southern portion of the mound of Mendes has suffered extensively from the activities of the local sebbakheen, this area remained virtually untouched due to the density of mud brick structures lying just beneath the surface. The first level, comprising three closely contemporary building phases consisted of a series of deep foundations, including a number of domed cists which may have served as subterranean storage chambers. The foundations of one square building, which measured 11 m. on a side, contained nine such chambers arranged in three rows of three; the foundations of a second structure consisted of a single row of seven chambers. The domes, where preserved, were constructed in a simple manner by stepping in successive courses of brickwork - first over the corners of the rooms to form squinches, then in the superimposed circular courses of the dome itself. Three completely preserved domes had an 80 cm. circular opening in the center, which provided the only means of access to the underlying chamber, the walls of which continued down to a depth of about 2.00 m. Several chambers retained a simple mud plaster coating on the upper surface of the dome, the edges of the circular opening, and the interior walls.

The question of the function of these cists remains unanswered. The fill of the chambers varied from one to the other and seems to reflect not their primary function but a final phase consisting of a purposeful filling or gradual accumulation of dumped debris after the cists had passed out of use.

In only one case was a small portion of the above-ground structure of these buildings preserved. One structure had the south facade preserved to a height of about 30 cm. The facade bore a coating of mud plaster which ran down over a small section of tamped earth floor.

Level II consisted of four strata cut extensively by the Level I foundations and, therefore, was unevenly preserved in the area excavated. The latest phase was a stratum formed by industrial activity centered on the manufacture of faience objects. A dozen terracotta amulet moulds and numerous faience objects: amulets (including types which match the moulds), beads, vessel fragments, and uninscribed scarabs came from this level along with a profusion of such artifacts as conical chalk "markers", limestone basins, fragmentary metal implements, and pot sherds reworked into disc-shaped "tokens".

The earlier Level II strata consisted primarily of disjointed wall scraps and associated fills. The earliest layer was a nearly solid deposit of sherds, 50 cm. thick, laid down as the foundation for a large wall. From this sherd layer came a variety of East Greek pottery fragments, primarily of Rhodian provenance, and ranging in date from c. 625-560 B.C.

It is somewhat ironic that fragments of East Greek pottery were almost the only datable finds from these levels. Most of the Egyptian pottery and small finds are types known from other excavations, but coming from contexts which provide only a general "Late Period" date. The East Greek pottery, however, provides a date of 625-540 for Level II. Because the Level I finds seem closely related to those of the previous strata, they cannot be far removed from them in time, and suggest a late sixth century date for the latest level.

The character of the pottery and small finds changed dramatically in the next level. This level consisted of strikingly homogeneous dumped debris which sloped down at almost a 45° angle from north to south within the area excavated. The debris contained primarily Third Intermediate Period, with some Late Ramesside, material. A sounding sunk into this level penetrated it to a depth of 3 m. without encountering deposition or material of a different type or date. When the total depth of the sounding reached 7 m. it became too dangerous to continue excavation. As the size of the labor force and the amount of time remaining in the season would not permit widening the upper edges of the pit for safety, we decided to try to reach the strata underlying this debris by a different means.

The edge of the ridge directly north of the excavation area was cut by a wadi running down from south to north into the harbor depression. A line of six 10 m. squares was opened incorporating this wadi in order to take advantage of the cutting already accomplished by centuries of erosion. It turned out that the new squares encompassed the north-south extent of a Hellenistic foundation system cut into the Third Intermediate Period debris. On the south, uphill, end these foundations were traced to a depth of 6 m. without encountering either their bottom or the bottom of the dumped debris. On the north end, the foundations rested on Level I-II type material, which extended to a depth of 1.5 m. and disappeared under the present sub-surface water table.

The work of the past two seasons provided considerable new information. It is now known, for example, that Mendes continued to be occupied during Hellenistic times, after the founding of the nearby city of Thmuis (modern Tell Timai). Also, the Late Period sequence excavated within the temple precinct has been amplified by work in the new area, and a Late Ramesside-Third Intermediate Period corpus of material has been defined. The discovery of Late Helladic and East Greek pottery and a Near Eastern cylinder seal provides interesting evidence of Mendes' trade connections and underlines the importance of the Delta as a link between the Nile Valley and Western Asia.

Karen L. Wilson

EXCAVATIONS AT QASR IBRIM, LOWER NUBIA

From January 15, to March 10, 1980, the Egypt Exploration Society conducted its 10th season of excavations at Qasr Ibrim in Egyptian Nubia. Assistance was also received from the Center, the University of Kentucky and the Smithsonian Foreign Currency Program. The expedition was under the overall direction of Dr. William Y. Adams.

Work focused on two main areas. The major effort concentrated on the clearing of Late Islamic or "Bosnian" structures which form the uppermost levels of this deeply stratified site. These levels date from between the middle of the 16th century and the early 19th century A.D.; they comprise the remains of a fortified town occupied by an Ottoman military garrison. A lesser effort was devoted to clearing a series of fortification walls along the southwest and northwest portions of the site, dating between Egyptian New Kingdom and Roman times.

The Late Islamic town at Qasr Ibrim consists of a series of rooms built largely of rough stone, set in small to moderate amounts of mud mortar. Many of the structures are plastered with mud and whitewashed. Their preservation is excellent and portions of at least one two-story building were standing at the beginning of our excavations. The remains cleared in 1980 were generally similar to those encountered in previous seasons. Interior deposits were relatively shallow and contained between one and four wet-laid mud floors. Fire hearths, storage pits, buried pots and standing mud silos were also uncovered.

One portion of the site contained a series of structures which were substantially more elaborate than those found elsewhere. They tended to be larger, had been reconstructed several times and contained deep interior deposits. At least one room had been decorated by the painting of relatively simple geometric designs in red, yellow and black over the whitewashed walls. These structures also produced quite large amounts of documentary material, some of it containing the names of civil and military officials. It thus seems reasonable to conclude that this was the elite portion of the town.

Overall, the picture emerging from our excavations in the uppermost levels of the site is one of a community engaged in most of the activities associated with town life. Many of the texts recovered demonstrate that the inhabitants maintained themselves as a military garrison throughout most, if not all of their stay. However, numerous other documents along with the architecture and various domestic artifacts clearly show that the local citizenry were organized into familial units and were concerned with religious, subsistence, and trade activities. This evidence argues against the common assumption that the Ottoman domination of Lower Nubia was primarily militaristic.

Excavations along the northwestern and southwestern flanks of the site revealed a series of fortification walls and related deposits dating from the New Kingdom to Late Islamic times. The walls were constructed of large blocks of well-shaped sandstone enclosing a rubble core. Much of the fill removed from around and between the walls consisted of deep, trashy deposits containing straw, textiles, pottery and an abundance of fragmentary texts in Demotic, Meroitic, Latin and Greek. The Roman levels were capped by a deposit of water-worn cobbles sporadically intermixed with clusters of roughly pecked spherical stones that may have served as ballista ammunition. The expedition recovered over 900 of the ballista stones, approximately 40 of which were inscribed with Latin, Greek or Demotic monograms.

As a result of the 1980 excavations we are now reasonably confident that the initial occupation at Qasr Ibrim dates to the Egyptian New Kingdom. We also have construction episodes attributable to the Napatan and Ptolemaic periods. The Romans made extensive modifications to the fortification walls and there were subsequent rebuildings during the Late Christian and Islamic occupations.

As usual, Qasr Ibrim produced a large amount of cultural material. It includes whole and fragmentary texts in Hieroglyphic, Demotic, Greek, Latin, Meroitic, Old Nubian and Arabic. Arabic dominated the collection with over 2400 specimens, several hundred of which were complete or nearly so. Other objects included pottery, a range of domestic tools, weaponry, jewelry, basketry and over 30,000 fragments of textiles.

Roger C. Allen &
Boyce N. Driskell

HIERAKONPOLIS EXPEDITION

The fifth season of the Hierakonpolis Expedition, under the direction of Dr. Michael Hoffman, was in the field from February 1 to March 27, 1980. The major focus of work this season was in the area of predynastic remains at the fork of the Dune Wadi and the Great Wadi, 3 1/2 kilometers west of the cultivation. Dr. Hoffman's

team conducted excavations of the proto-dynastic and Amratian cemetery in locality 6, ceramic studies of the Amratian settlement in locality 29, a test excavation of the proto-dynastic cemetery beneath the "Fort" (locality 27), survey and mapping of architectural features in 10 predynastic localities in the low desert near the cultivations, and studies of the flora, fauna, sediments and geochemistry of these areas.

Major results of the season included the identifications of the large stone tomb (No. 2) found last year in the locality 6 as definitely predynastic in date, most probably proto-dynastic but possibly as early as Amratian, on the basis of the pottery in associated graves. The test excavation beneath the "Fort" produced fragments of a proto-dynastic pottery coffin, incised with animal and bird motifs. Artifacts found in the Amratian tombs included a number of reconstructable whole pots and several disc-shaped maceheads, one of which, of porphyry, was extremely well made and preserved.

The Hierakonpolis Expedition is sponsored by the Center, the American Museum of Natural History, New York, and Vassar College, and is funded by a grant from the Smithsonian Institution.

THEBAN MAP PROJECT

The Berkeley Theban Map Project worked in Thebes from mid-April 1980 through mid-July. The Project completed mapping of the Valley of the Kings and an extensive above-ground survey of archaeological features. It also undertook extensive additional aerial photography. Dr. Weeks now plans to translate the data into plans for publication and foresees the appearance of the first volume of the Theban Map Project in one year. The work of the Project will resume next year in the Valley of the Queens.

K. R. Weeks

NAUKRATIS

A preliminary survey at Naukratis and in its environs conducted by the authors in the winter of 1977-8 revealed the need for renewed excavation and intensive survey work there. Both were begun in the summer of 1980, a full 75 years after Hogarth's final publication of his work at the site in 1905.

Due to the unknown state of preservation of many of the sites in the Nile Delta, a resolution was passed at the Second International Congress of Egyptologists held at Grenoble in September, 1979, giving priority to survey work in the Delta. The situation is particularly serious in the western Delta where, in the Behera province alone, there are some 180 sites whose existence is threatened by both natural and human agents. Accordingly, the aims of the Naukratis survey are to record the state of preservation of all sites within an approximate 30 km. area to the north and west of the city and to compile a register

of such sites with notations as to the extent of intrusions made by modern settlements and cultivation and drawings of the material culture obtained through surface survey and trial excavation. The extensive sherd cover at many of the sites also enabled the survey team to begin the creation of a typology of Hellenistic and Roman sherds collected from the surface to serve as a reference for those uncovered during excavation. In turn, it was expected that the material from the renewed excavations at Naukratis would provide a fine chronological control for the survey pottery. Other work of the survey team included a statistical study of the pottery recovered from Kom Dahab (i.e. testing various techniques of sampling), an epigraphic survey, balloon photogrammetry, botanical studies, and historical and papyrological studies.

The survey team, in addition to mapping and sherding such sites as Kom Barud, Kom Kortas, and Kom Kharaz and adding them to the register, also conducted a complete photographic survey of the remains at Kom Firin. This survey was initiated because of the collapse within the past two years of a large mud brick circular tower in what appears to be an inner fortified citadel. Aerial balloon photography at Kom Firin is planned for the 1981 season. Considerable time was also spent at Naukratis itself in the region of the lake formed from the area excavated by Petrie and his successors between 1884 and 1903 and in the adjacent fields. From the sherds collected from this survey work, 335 individual Roman types were distinguished and 154 Hellenistic, including skyphos types, bowls, plates, and a range of household wares.

Excavation at Naukratis in 1980 was concentrated in a large mound (Field 1) to the south of the lake in an area where Petrie claimed to have found his "Great Temenos", a large open-air mud brick structure which he identified as an inner citadel and storage area. The preliminary season in 1977-8 (see NARCE 103, Winter 1977/78, pp. 13-26) had shown this mound to contain sections of mud brick walling and suggested that this area offered the possibility of resolving some of the problems connected with the existence of Petrie's so-called Great Temenos. Accordingly, trenches were laid out along the western edge of the mound where sections of mud brick walling had already been exposed through cuts made by the sebakhin. Soundings were made in two areas to a depth of 3.0 m., revealing mud brick walls of at least two, and possibly three, distinct architectural phases, together with a good stratified series of Roman pottery, including plates, bowls, cooking pots, and other domestic shapes. It appears, then, that in Roman times a series of houses were built in the so-called temenos area. Consequently, since the 1980 excavations in the temenos area were concerned primarily with the Roman levels, clarification of problems concerning the very existence of the Great Temenos in Greek times must await excavation in future seasons.

William D. E. Coulson
Albert Leonard, Jr.

A STUDY OF ARCHITECTURE IN CAIRO DURING THE OTTOMAN PERIOD
(1517-1798)

In Summer 1978 I began a general survey of architecture during the Ottoman rule, assisted with a grant from the American Research Center in Egypt. During the initial three-month period I went to the site of every building dating from the Ottoman era that is listed in the Index to Mohammedan Monuments in Cairo¹. I photographed each of these still standing (around 145) and recorded both their present condition and a number of architectural attributes and distinctive characteristics. I was assisted by Mr. Muhammad Husam al-Din Isma'il, a young art historian who is employed by the Documentation Center for Islamic Monuments. I returned to Cairo in 1979 funded by a grant from the Research Foundation of the City University of New York. I re-photographed several selected mosques and sabil-kuttab, studied them in greater detail, and made ground plan sketches. Mr. M. Husam al-Din again accompanied me during my studies. During both summer stays I benefited from the assistance and advice of Egyptian scholars, among them Laila Ibrahim (Serageldin), 'Abd al-Rahman, 'Abd al-Tawab, Amal al-Amari, Nelly Hanna, and Doris Abu Sayf. I am planning at least one more prolonged study trip to Cairo and Istanbul, to complete the architectural survey and to work on the available archival documents relating to the buildings and their builders.

There is an urgency to the study of these buildings. Time is naturally taking its toll; pollution and squatters in some of the buildings accelerate the natural process of deterioration. There are few and only brief references to Ottoman period structures by travellers to Egypt, and even the art historians have largely neglected the period of Ottoman occupation in Egypt (with the exception of J. Williams and M. Meinecke²).

The reasons for the neglect of Ottoman period art and architecture in Egypt by historians are twofold: Cairo was reduced by Ottoman conquest from an imperial city to a provincial capital; and, the period coincided, particularly after 1600, with the decline of the Ottoman Empire. Lack of a strong central authority and diminished economic conditions of the Ottoman Empire after the 16th century did not create a favorable atmosphere for patronage in architecture. Nevertheless, the city did not collapse during the three hundred years of Ottoman rule, in fact kept on growing. It is an architectural period which deserves attention and analysis if we are to understand Islamic architecture both in Egypt and Ottoman Turkey.

1. Index to Mohammedan Monuments in Cairo, Survey of Egypt (1951).
2. John A. Williams, "The Monuments of Ottoman Cairo", Colloque International sur l'Histoire du Caire, Cairo: (1969).

Michael Meinecke, "Die Architectur des 16. Jahrhunderts in Kairo, nach der osmanischen Eroberung von 1517", IVème Congrès International d'Art Turc, Etudes historiques 3 (1976).

Ülkü Ü. Bates
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ARCE Fellow, Summer 1978

ARABIC OF THE COMMUNICATIONS MEDIA

This report is based on the Linguistic research on Arabic of the Communications Media conducted in the summer of 1979 under an ARCE Grant through the International Communication Agency. The investigator is of the opinion that research on Pan-Arabic ("...words that are widely and clearly recognizable with maximum applicability throughout the Arab countries..." See the author's A Sample Lexicon of Pan-Arabic) will benefit greatly from the language of Arabic of the Communications Media. Journalistic Arabic is usually concise since the writer focuses on the issue at hand rather than on language embellishments. Newspaper Arabic uses vocabulary, styles, and structures directed to the general public at large.

Field research in Egypt during the summer of 1979 focused on the following:

1. Collecting linguistic material from a variety of newspapers and magazines.
2. Assessing the status and degree of acceptability, usage and diffusion of communications media Arabic among the masses in general and members of the educated class in particular.
3. Assessing the role which communications media Arabic plays in the evolution of Pan-Arabic.

Currently, the investigator is using the data, field notes, analyses and educated native speakers' comments as the bases for a forthcoming publication entitled Arabic of the Communications Media: Texts, Drills and Lexicon, a much needed volume for the teaching of Arabic in American University. The research on which the forthcoming publication is based draws heavily on the results of the linguistic field work and research conducted in the Summer of 1979 and the ARCE grant.

The research on Arabic of the Communications Media conducted in the Summer of 1979 under the ARCE grant has offered new corpus and new data for the investigator's on-going research on Pan-Arabic. The investigator was able to verify 5,300 vocabulary items which are compatible in form and meaning with Educated Spoken Egyptian, Saudi, Kuwaiti, Syro-Lebano-Palestinian, and Moroccan. Moreover, an additional 3,200 items taken

from the newspaper language, have been identified as Pan-Arabic words by the investigator.

Ernest T. Abdel-Massih
The University of Michigan
ARCE Fellow, Summer 1979

CONSTITUTIONAL DEVELOPMENT AND MODERNIZATION IN EGYPT
1952-1970

The purpose of this study was to examine constitutional changes in Nasir's Egypt, 1952-1970, and their effects on the political modernization of the country. Recognizing the elusiveness of the concept "modernization", I focused, nevertheless, on two important processes regarded as essential for political modernization by most students in the field: democratization and secularization.

I. Under the process of democratization the following were examined:

1. the government system from 1953 to the promulgation of the 1971 Permanent Constitution;
2. the role of political parties;
3. civil and political freedom including freedom of the press.

II. Under the process of secularization the following were explored:

1. the relationship between the constitution and the Islamic Law (Shari'a);
2. examination of the conflict between secular (statutory and constitutional laws and the Islamic law of personal status;
3. finally, the question of the possibility of reconciling Islamic law and modernistic legislation was addressed.

Sources

To investigate the above-mentioned questions and relationships, I spent three months in Cairo, from October 1 - December 31, 1979, during which time I was able to consult the following sources.

1. With the help of the American Research Center in Egypt I secured a permission from the Public Services Department of the People's Assembly to visit the Library of the People's

Assembly. The permission was for two months excluding holidays and the days when the People's Assembly was in session. Library hours were from 9:30 am to 2:00 pm. Despite these restrictions, I was able to review the available records, reports, studies and recommendations of the various constitutional drafting committees, notably those of 1953-54 and 1966-67. Unfortunately, this researcher was denied access to records and reports of the parliamentary constitutional committees. These are "confidential". Thus, there is no way of knowing what actually went on prior to the final promulgation of a constitution or a constitutional declaration.

2. Records of the National Assembly. These include the open debates and deliberations of the members of the National Assembly (now People's Assembly) beginning with 1956 and ending with 1976.
3. The records of the Congress of Popular Forces of 1961-62. During this conference, President Nasir tried to involve the people in the formulation of the National Charter, the establishment of the Arab Socialist Union, and the drafting of a permanent constitution for the United Arab Republic.
4. Statutes as well as Presidential decrees bearing on the process of democratization and secularization have been identified but not yet thoroughly examined.
5. The Islamic Laws of Personal Status and their effects on the process of social change and modernization need to be carefully examined.
6. The opinions of scholars, writers, and journalists are also an important source of how the regime functioned.

Lest the reader is left with a completely negative picture, let me hasten to say that the Nasir regime had to its credit a number of positive and even glorious achievements. The transformation of an archaic semi-feudal society into a more industrial and socially just one is no mean accomplishment. A republican system of government recognizing for the first time the people as the source of all powers has replaced a corrupt monarchy that had shown complete disregard to the most elementary human rights. Although a "sound democratic system" was not established, many irreversible steps were taken in that direction. Principles like "social justice", "human dignity", "equality of women", and even "constitutional legitimacy" have become part of Egyptian political vocabulary and, consequently, integral to their thinking. Sadat's 1971 Constitution is not radically different from the Provisional Constitution of 1964; the text is in most places identical. Will it be more faithfully implemented to corroborate the Egyptian saying that:

"What is consequential is not the text but its application"?

Fauzi M. Najjar
Michigan State University
ARCE Fellow, Fall 1979

MEDICAL DOCTORS
A STUDY OF ROLE CONCEPT AND JOB SATISFACTION
THE EGYPTIAN CASE

The International Conference on Primary Health Care, meeting in Alma-Ata September 12, 1978 declared:¹ "The Conference strongly reaffirms that health, which is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity, is a fundamental human right and that the attainment of the highest possible level of health is a most important worldwide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector".

The health status of hundreds of millions of people of the world today is inadequate, especially in developing countries. More than half the population of the world does not have the benefit of proper health care.² These problems will not be solved by merely providing additional resources or by repeating existing patterns and types of solutions. The problems of management of health services should not be viewed in isolation, but as an integral part of the social and political, cultural and economic conditions of the country.³

The following research developed out of a pilot study that was executed in Menoufia Governorate, Egypt, at rural health units in which doctors function as Unit Administrators.⁴ Rural Health Units were selected for the original study since these units provide a unique administrative experience. In Menoufia there are 134 health units serving 302 villages and a population of 1.7 million. Administratively, the doctor is in charge of the rural health unit. Because of the pressing need to improve Egypt's health services, it was felt that a study of this type would have relevance not only for the purpose of the study but also for the indication of Egypt's needs. This project is an attempt to explore the problems of consensus of role definitions, anticipatory socialization, values, role complementarity and role fulfillment of the Egyptian physician in both rural and urban areas.

A total of 136 Egyptian physicians were studied for comparison, representing a sample of rural Upper Egypt, rural Lower Egypt and urban Cairo. The primary data was collected by means of a pretested questionnaire in Arabic translation. Questions included responses to the physician's felt need for additional education and training, their functions, an analysis of the level

of competence of subordinate personnel, advantages and disadvantages in the present employment situation. Questions also related to problems encountered in performing their jobs, as a female or a male, from the people of the community, from the staff in the clinic, from the supervisors in the Governorate and from the Administrators in the Ministry of Health.

Respondents were asked to rate their administrative and supervisory skills, the extent to which they are satisfied with their career, family relationships, social relationships, leisure time recreational activities and financial and social status. The Hussein Value Scale⁵ was used to determine the respondents' value measurement of achievement, independence, and recognition. Additional information was gathered from Health Administrators at the Ministry of Health by personal interviews. Interviews were conducted to provide an in-depth understanding of how the doctor views his role. To better understand the anticipatory socialization, a total of 105 fourth-year and fifth-year medical students were asked to complete a questionnaire in Arabic translation. In addition, visits were made to rural health clinics for participant observations.

The question examined is whether the physician's professional identity is an individual product arrived at via the process of adult socialization (medical education) or whether the physician's behaviour is primarily dominated by the structural components of his/her working situations while practicing medicine.

Results of the study indicate that geographical, educational and social variables influence motivation behaviour. Further, there is an indication that a correlation exists between motivation and job satisfaction.

The following hypotheses were verified: Incumbents of a position will rate their university preparation (fulfillment of role expectations) relative to their scholastic achievement. Incumbents of a position which is geographically isolated will define their role performance in a lesser degree than incumbents of a similar position in less isolated or more urban areas. The explanation for the above being marginality and the lack of visibility of role performance.

1. Primary Health Care, *Report of the International Conference on Primary Health Care*, Alma-Ata, USSR 6-12 September 1978, World Health Organization, Geneva, 1978, p. 2.
2. *ibid.*, p. 2.
3. El-Mehairy, T. M., "Medical Doctors: Managerial Abilities and Role Definitions", *Middle East Management Review*, Vol. II, No. 1, 1978, pp. 121-137.
4. *ibid.*

5. Hussein, M. E. A., *The Specific Values of the Creative Person*, unpublished Ph.D. dissertation, Cairo University, Department of Psychology, 1978, p. 194, (in Arabic).

Theresa El-Mehairy
Salford University
England
ARCE Fellow, 1978-1979

BRETHREN OF PURITY: THE DYNAMICS OF A SOCIO-POLITICAL MOVEMENT OF MEDIEVAL ISLAM

My investigation concerned itself with the question of the time and authorship of the medieval Islamic encyclopaedia, the Rasa'il Ikhawan al-safa' (Epistles of the Brethren of Purity). I have disproved the generally accepted report of Abu Hayyan about the authors of the Rasa'il and its composition shortly before 373 H./A.D. 983. Rather, an alternate report by a very early Fatimid Da'i places the Rasa'il in the period prior to the establishment of the Fatimid Caliphate.

To substantiate my acceptance of the second report in preference to the first, I began examining the internal evidence in the encyclopaedia. I examined the time-layer of several of the encyclopaedia's theories, ideas and definitions in diverse fields such as theology, philosophy, political science and mathematics and compared them to other works in the field. For such a task an investigation based on the manuscript wealth of Cairo, particularly contained in the libraries of the Arab League and the Dar al-Kutub was essential. Also the expertise in these fields possessed by scholars of Egypt and the western scholars stationed in Cairo was a resource most useful for my work. The material collected by me during 1978-79 has been sketched in several papers to be further shaped, developed and given at various forthcoming conferences.

Later I plan to re-arrange my studies on the Rasa'il along with English translations of the relevant epistles from the encyclopaedia into a book entitled The Quest of the Brethren of Purity. The general summary which was the subject of my Seminar at ARCE in March 1979 can serve as Introduction.

Abbas Hamdani
University of Wisconsin
Milwaukee
ARCE Fellow, 1978-1979

ARCE NEWS AND ANNOUNCEMENTS

1981 ANNUAL MEETING

MARCH 13, 14, 15

BOSTON PARK PLAZA HOTEL

Program Committee: Edward Brovarski, Boston Museum of Fine Arts, 465 Huntington Avenue, Boston, Mass. 02109, chairman (Egyptology, archaeology, prehistory, and Coptic studies);

Michael Bates, American Numismatic Society, 156 Street and Broadway, New York, N.Y. 10032 (Medieval history and Islamics);

Donald Reid, Georgia State University, 33 Gilmer Street, S.E., Atlanta, Ga. 30303 (Current affairs, modern history, anthropology, economics, politics and contemporary literature)

We urge all members interested in presenting papers or organizing panels to act soon. Please contact the members of the program committee responsible. Plan to submit a publishable abstract to this committee before December 15, 1980.

* * *

MESA LUNCHEON

This year, as in the past, we have arranged for a special ARCE luncheon during the annual meeting of MESA in November. The luncheon will take place at the Roslyn Westpark Hotel across the river from Washington, D.C. on Friday, the 7th of November from 12 to 2 pm. Please note that the regular sessions of the MESA meeting begin this year Friday morning. We would be especially grateful, therefore, if those members who plan to attend would inform the U.S. office as soon as possible.

* * *

NEW QUARTERS AND NEW SECRETARY
FOR THE U.S. OFFICE

Beginning with August of this year, we have successfully moved the headquarters of our U.S. activities to a new location. ARCE's U.S. branch now operates from the eleventh floor of Columbia University's School of International Affairs. Our new address is:

ARCE
 1117 International Affairs Building
 Columbia University
 New York, NY 10027

and the telephone number is: (212) 280-2045.

Although we deeply regretted losing the services of Ms. Charlene Caminade as secretary because she preferred to stay in the area of Trenton near her home, we are fortunate that she will be replaced by Mrs. Teresa Indiveri. Mrs. Indiveri has experience working as bookkeeper, secretary and word processor, but was most recently a curatorial trainee in The Brooklyn Museum's Department of Egyptian and Classical Art. She also holds an M.A. in Archaeology from Columbia University.

* * *

PHILAE TEMPLES RE-OPENED

The American Research Center was one of several archaeological missions invited by the Egyptian government to the opening of the Philae temples. The inauguration was held during a four-day ceremony in Aswan, March 9-12, coinciding with the formal closing of the Nubian Salvage Project, twenty years after its inception. Altogether, some 400 participants were invited, including representatives from UNESCO, the various governments and construction firms involved in the Philae project, and a number of the archaeological missions. President Sadat was represented by Mme. Sadat and by Mansur Hassan, Minister of State and Presidential Advisor for Cultural Affairs. The U.S. sent a delegation including John Slocum, former member of ARCE's board of Governors; Ambassador and Mrs. Atherton also attended the inauguration. ARCE Cairo was invited in recognition of its assistance in transferring part of a total U.S. donation of 4 million dollars to the salvage of Philae.

* * *

AMERICAN RESEARCH CENTER IN EGYPT

Research Fellowships for the Year 1980-81

Funded by the Smithsonian Foreign Currency Program

<u>NAME</u>	<u>RESEARCH TOPIC</u>
*Robert D. Delia New York, New York	A Re-examination of the Middle Kingdom Rock-Cut Inscriptions <u>In Situ</u> Between Aswan and Philae
*Wolfhart P. Heinrichs Harvard University	Inventory of Unpublished Manuscript Material on the History of Arabic Literary Theory - Tufi bibliography
+Valerie J. Hoffman University of Chicago	The Participation of Women in Islam: A Study of the Relation Between Religious Practice and Social Class
*Cathleen A. Keller Metropolitan Museum of Art	Egyptian Painters of the Ramesside Period
*Edmund S. Meltzer University of Toronto	Updating and Continuation of 'Urkunden VII's: A Compilation of Primary Sources of the Middle Kingdom
*Safia K. Mohsen SUNY-Binghamton	Changing Patterns of Female Criminity in Egypt
*Bezalel Porten University of Pennsylvania	Aramaic Archives of the Persian Empire
*Emilie Savage-Smith University of California, Los Angeles	Islamic Geomancy: The nature, origin, and diffusion
+Donald B. Spanel University of Toronto	The Administration of Middle Egypt During the First Intermediate Period
+Marjorie S. Venit New York University	Greek Painted Pottery in Egypt

AMERICAN RESEARCH CENTER IN EGYPT

Research Fellowships for the Year 1980-81

Funded by the National Endowment for the Humanities

NAME

*Shahrouh Akhavi
University of South Carolina

*Robert A. Fernea
University of Texas,
Austin

*Nancy E. Gallagher
University of California,
Santa Barbara

*Nicholas S. Hopkins
American University in Cairo

*Soheir A. Morsy
Michigan State University

*Carl F. Petry
Northwestern University

RESEARCH TOPIC

The Political Culture of Egyptian
Workers

An Ethnographic View of Egypt
After OPEC and Camp David

Health Care in Modern Egypt:
1900-79
(partially funded by the International Communication Agency)

Modernization in Rural Egypt

Wage Labour, Male-Female Power
Relations and Illness in the
Egyptian Nile Delta: A Comparative
Analysis
(partially funded by the International Communication Agency)

The Reign of Qaitbay in Egypt:
Pietism and Autocracy in a Medieval
Muslim Society

+Pre-doctoral
*Post-doctoral

AMERICAN RESEARCH CENTER IN EGYPT

Research Fellowships for the Year 1980-81

Funded by the International Communication Agency

NAME

*Joseph N. Bell
SUNY-Binghamton

*Irene A. Bierman
University of Washington

*Donald J. Cioeta
Portland, Oregon

+Ellis J. Goldberg
University of California,
Berkeley

*Iliya F. Harik
Indiana University

*Ann E. Mayer
The Wharton School
University of Pennsylvania

+Arthur K. Reinhart
Harvard University

*Everett K. Rowson
University of California,
Berkeley

*Suzanne P. Stetkevych
University of Chicago

*Wheeler M. Thackston, Jr.
Harvard University

RESEARCH TOPIC

Edition of al-Daylami's 'Atf al-alif

Fatimid models for Norman calligraphy

Syrian Muslim Journalists in Egypt
1876-1920

The Egyptian Labor Movement, 1919-
1952

New Development Strategies in Rural
Egypt

Islamic Banking

Individual and Community, Obligation
and Responsibility in Usul al-Fiqh

Cant and Argot in Cairo Colloquial
Arabic

CUdhri Poetry and CUdhri Romance:
The Hellenistic Roots of Umayyad
Literature

Investigation of Persian Manuscripts
at the National Library, Cairo

+Pre-doctoral
*Post-doctoral

BOOK REVIEWS

In order to facilitate my work as Review Editor of JARCE, I thought it might be useful to include a listing of books received, which are available for review. The following books can be requested from me:

Gernot Wiessner *Synkretismusforschung Theorie und Praxis*
Synkretismus in Ägyptischer Ikonographie

Karola Zibelius *Ägyptische Siedlungen nach Texten des Alten Reiches*

Charles E. Butterworth *Averroes' Three Short Commentaries on Aristotle's Topics, Rhetoric and Poetics*

Lois Beck and Nikki Keddie *Women in the Muslim World*

Wolfhart Westendorf *Aspekte Der Spätägyptischen Religion*

Edgar B. Pusch *Das Senet-Brettspiel im Alten Ägypten*
Teil 1.1 & Teil 1.2

Christine Lilyquist *Ancient Egyptian Mirrors from the Earliest Times through the Middle Kingdom*

Christine Seeber *Untersuchungen zur Darstellung des Totengerichts im Alten Ägypten*

Hans Goedcke
Professor of Egyptology
Department of Near Eastern Studies
The Johns Hopkins University



